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HYGEIA

THE HEALTH MAGAZINE

Published by the American Medical Association

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It May Be Your Teeth

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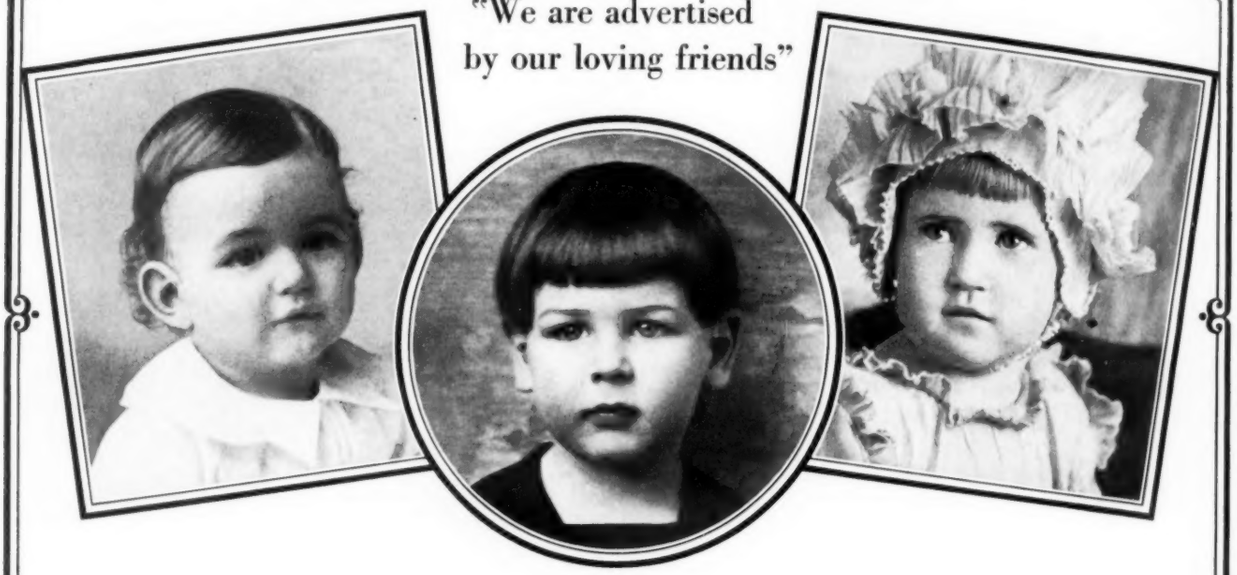

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THE HEALTH MAGAZINE

Published by the American Medical Association
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VOLUME 5 — NOVEMBER, 1927 — NUMBER 11

AMONG THE NOVEMBER CONTRIBUTORS

DR. GEORGE H. WRIGHT, who writes the leading article this month, is a member of the faculty of the dental department of Harvard University. A Boston specialist, DR. SAMUEL R. MEAKER, discusses the recent scientific advances in the treatment for sterility.

Home-makers studying in the department of home economics at the University of Illinois learn the tests for good bread described by FLORENCE FARNAM. The doctor's formidable vocabulary receives illumination from a philologist, LLOYD E. SMITH, who reduces Greek medical terms to ordinary language for HYGEIA readers.

DR. GEORGE B. LAKE is a Chicago physician and editor of a medical journal. WALTER BENTON has made a study of safety methods in industry as a basis for his article on face armor.

LULU G. GRAVES, consultant in hospital and general dietetics, gives competent advice in this issue and the December one, as a part of HYGEIA'S campaign for adequate breakfasts. HARRIET WEDGWOOD, who has contributed several articles and stories to HYGEIA, is the author of numerous articles on the correlation of health with standard school subjects.

DR. WALTER BÉRAN WOLFE, psychologist, has written a series of interesting studies on different phases of child psychology. An experienced pathologist, DR. SHIELDS WARREN of Boston, tells of the progress made in fighting cancer. DR. PARK LEWIS, a specialist in diseases of the eye for many years, presents new phases of an important subject. BENJAMIN HARROW is a well known biochemist at Columbia University.

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Contributions to HYGEIA *are considered, and, if accepted, paid for. Stamps for the return of unaccepted manuscripts should be enclosed. All communications should be addressed to* HYGEIA, *535 North Dearborn Street, Chicago, Illinois.*

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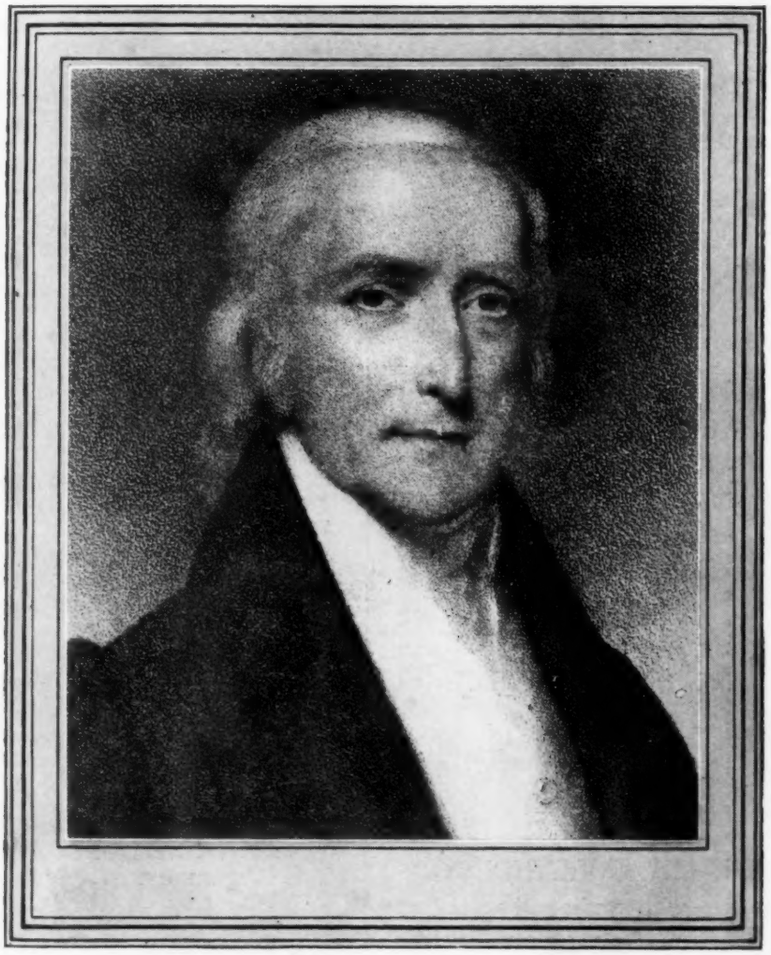


HEROES OF AMERICAN MEDICINE

VII. Philip Syng Physick

ON JULY 7, 1768, Philip Syng Physick was born with a family name singularly apt for one who came to be called the best equipped surgeon of his generation. He was graduated with the degree of Bachelor of Arts by the University of the State of Pennsylvania in 1785. When he was 21 years old his father took him to London, where he was taken into the family of John Hunter. With this great master Physick worked at dissection, and it was through Hunter that he became house surgeon at St. George's Hospital.

Before leaving London Physick received the license of the Royal College of Surgeons and later the degree of M.D. from Edinburgh. He was considered a leader of surgeons in a period when John C. Warren was operating in Boston, Valentine Mott was famous in New York and McDowell and Dudley were known in Kentucky.

In 1794, Physick was elected surgeon to the Pennsylvania Hospital. He worked through the great yellow fever epidemic of 1798, became instructor in surgery in the university school in 1800 and professor of surgery in 1805. This position he held for thirteen years.

Physick devised many types of apparatus for the treatment of fractures and dislocations. His operation on Chief Justice Marshall because of the presence of numerous stones in the bladder has been reported as one of the unusual feats of that time.

It May Be Your Teeth

By George H. Wright

Unsound teeth may affect the nerves, eyes, nose and throat. One should always keep the teeth, tonsils and sinuses in a healthy condition.

YOUR teeth may be to blame for more than a swollen jaw or a throbbing ache. Those neuralgia pains, that nose and throat difficulty and even a serious disturbance of the eyes in many instances may be traced to unhealthy teeth, tonsils or nasal sinuses.

In many obscure conditions, before the physician starts medical or surgical treatment he will say to his patient: "You had better let the dentist give your mouth a careful inspection. It may be that your teeth are the basis of the trouble."

The dentist maintains a benevolent but suspicious tolerance of devitalized or pulpless teeth and he wages an uncompromising warfare on abscessed teeth that do not yield to treatment.

To understand how the nerves, eyes, nose and throat may be affected by the teeth it is first necessary to know what a normal tooth is like and what its relations to other structures are. The tooth begins to grow and form its various parts—enamel, dentine, pulp, supporting bone and membranes to hold it ultimately in its bony socket—at an early period in the prenatal life of the infant. As early as the second month of prenatal life there is marked evidence of the specialized cells that form the enamel and dentine.

Month by month the tooth is formed, and various pauses and arrests in the growth are due to faulty nutrition of the mother. Many structural defects that appear in the teeth in adult life are then laid down and perhaps answer the question as to why teeth appear to break down so easily in spite of extreme care on the part of parent and dentist and in spite of all the cleaning pastes, powders and washes advertised and known to man.

The teeth and their adjacent structures are sensory nerve organs, and pain in these structures is a beneficial reaction of the nervous system, an indication of an altered structure or disordered function, a species of warning that a function of a nerve has been disturbed. Pain is the result of overexcitation of the sensory nerves. Toothache is commonly felt in a definite tooth; when neuralgia is present the pain not only changes its character but is referred to areas other than the site of origin.

Like other acute diseases in the body, if warning toothaches are left untreated, they may degenerate into complex neuralgias, which give rise to all sorts of manifestations and disordered functions elsewhere. Unerupted teeth, such as the lower third molars, commonly called wisdom teeth, may cause a distinct pain in the ear, although the ear is structurally sound and without disease. There is no relief until the tooth comes to a normal position or is surgically removed. Sometimes unerupted teeth in adults are the basis of an unstable nervous condition. In its buried state an unerupted tooth may lie across the branch of a nerve, causing an irritation not manifested as toothache or neuralgia but giving rise to emotional stress, melancholy or hysteria.

Those Neuralgic Pains

Another source of neuralgia may exist when sound teeth are involved in the formation of small calcific bodies within the teeth; these are called pulp stones. The tooth is clean and vital within but the stones shut off the normal blood supply and interfere with the proper functioning of the nerve mechanism. This may be caused by fillings placed too near the vital pulp or it may be the result of some constitutional defect not easy to control. Nerves may be affected by teeth giving rise to neuralgic pain when dissimilar metals are in close contact, as in gold and alloys of metals. These may develop small electrical charges and momentary contacts may give rise to a slight shock of pain.

The teeth and their supporting structures may be involved in a variety of tumors or cysts. These by pressing on a nerve cause pain of the referred or neuralgic type; the pain is the first intimation of tumor.

Many other factors known to the skilful dentist and physician may directly or indirectly cause these neuralgic pains. Only the most careful examination, sometimes by several physicians and dentists, will reveal the cause.

A sufferer with neuralgia may not possess a single tooth in the upper or the lower jaw, yet the pain will be beyond endurance. All normal structures of bone may have been obliterated, including channels, canals and openings for entrance and exit of blood vessels and nerves. Often this has been induced by the extraction of all teeth years ago, when good and abscessed teeth alike were sacrificed. To this loss must be added the great destruction of the supporting bony structure, which served to hold the teeth in the sockets. As age advances a certain amount of absorption of jaw bone normally takes place and infinitely more occurs after extraction. The principal nerve of the jaw is lost in a dense calcified bone and whatever remnant of the nerve may exist beyond the jaw is shocked with its nerve impulses until the sufferer is unable to tell what part of the face is pained. It will require rare skill and the combined talent of doctors and surgeons to give relief. Sometimes this condition is induced by constitutional diseases. The x-ray photograph, when skilfully interpreted, is a valuable aid in such cases.

Many defects in the teeth of adults were laid down in infancy and such teeth break down easily in spite of extreme care and all the cleaning pastes, powders and washes known to man.

Toxins May Reach the Eyes

The eyes, though remote from the teeth, are intimately connected with them through the lymphatic and blood circulation. When an upper tooth is diseased with a large abscess and when there is no outlet for its pus and toxins, there may be such a diffusion of toxins by way of the lymphatic spaces, vessels and membranous paths as to bathe the interior of the eye in these poisons.

The surgeon today is careful not to operate on the eye if he suspects the presence of diseased teeth, tonsils or sinuses, because all these structures are intimately connected through the lymphatic and blood circulation. A routine examination of teeth, tonsils and sinuses or other sources of toxic products is made when surgical treatment on the eye is necessary for glaucoma or cataract. The removal of foreign bodies in the eye calls for a quick estimate of the chances for recovery and healing. Unfortunate indeed is the patient with an injured eye who has diseased teeth, tonsils or sinuses.

An inflammation of the iris called iritis appears to be susceptible to toxins from teeth, tonsils and sinuses, and when these have been examined and ruled out as factors and when the eye fails to show improvement under routine treatment, other parts of the body must be considered.

The eye specialist is alert to the importance of toxic products outside the eyes and is ready to cooperate with family doctor and dentist to the advantage of the patient. As a protective measure the patient must see to it that no surface filth from loose and abscessed teeth or debris from an unclean mouth touches the fingers, lest it be rubbed into the eyes and start inflammation or infection that may lead to serious consequences. Furthermore, the patient has the responsibility of keeping teeth, tonsils and sinuses in a healthy condition. To this end a physical examination at least once a year and an x-ray examination of teeth known to be devitalized are a great protection.

The nose and throat may be affected by teeth that are sound. Malposition of the teeth is reflected in the growth of the face, in the following ways:

1. Narrowed arches causing the teeth to overlap.
2. Narrow vestibule of the nose front.
3. Deviated (crooked) septum.
4. Heavy bony thickening near the floor of the nose.
5. Narrowed internal breathing space, as a result of the turbinate bones being too close to the septum.

The latter condition results in a lessened function of the turbinates, with poor drainage, ventilation and sanitation. In early childhood it may be corrected by training in vigorous mastication and by intelligent feeding. Mechanical help may be obtained from the orthodontist, who corrects dental irregularities. Finally, surgical treatment may be required.

Diseased teeth have the power to affect the nose and throat in four important ways:

1. By causing an enlarged gland in the side of the neck.
2. By furnishing tuberculosis bacilli with a pathway for entering glands, throat and lungs.
3. By causing enlargement of the tonsils.
4. By causing acute and chronic catarrh, through the direct relationship of abscessed roots and the antrum; in catarrh, pus from abscessed teeth overflows into the nasal cavity, bathing the eustachian tubes and bringing about secondary infections.

Looking Out for a Healthy Body

When you learn of the damage that may be caused by the teeth, it is no wonder you are interested in the conservation of sound teeth and the salvation of injured and repaired teeth, for the sake not only of your teeth alone but for healthy nerves, eyes, nose and throat.

Danger Ahead—Carbon Monoxide Poisoning

WITH the coming of winter, sinister records of deaths and partial asphyxiations from carbon monoxide poisoning begin to appear in health reports.

All the danger from gas heating appliances lies in the lack of proper ventilation. Natural gas does not contain carbon monoxide, but the poisonous gas is soon produced if an air mixer is defective. The health commissioner of Oklahoma warns users of gas to investigate flues, chimneys and stoves and to provide ventilation.

Carbon monoxide poisoning is said to be the most widespread cause of poisoning in human life. The *Industrial Hygiene Bulletin* of the New York state department of labor gives some hints about resuscitation in cases of asphyxiation.

Apparatus May Be Dangerous

The use of resuscitation apparatus for reviving persons suffering from carbon monoxide asphyxia is extremely dangerous in the hands of inexperienced and excited operators, the bulletin says.

The various devices are invaluable in the hands of experts, but many do not know that they alter the normal physiology of respiration by forcing air into the lungs and sucking it out, whereas the normal function is the opposite. Expelling the air from the lungs is caused by the pushing out of air by the contraction of the muscles of the chest. Inspiration is merely a rushing in of air from the outside after expiration.

Schäfer Method Is Safest

It is generally believed that the Schäfer or manual method is nearly as effective and is far more safe in the hands of the inexpert. The normal physiology of respiration is more nearly approximated, the chest being alternately compressed for expiration and released for the inrush of air.

Unless these facts are borne in mind, there is danger of injury to the heart from blowing in too much air. It is difficult to obtain properly fitting masks. Obstructions may exist in the air passages and may be found only by persons versed in the anatomy of the respiratory system. Other dangers are that infective material may be carried into the lung, that excessive artificial respiration may cause a dangerous fall in the blood pressure or that the lung may be ruptured.

Another method of resuscitation is the administration of drugs, which can be done only by a physician. The Schäfer method must always be considered the safest for the inexperienced person to use.

TWO MILLION American Homes Childless

By Samuel R. Meaker

EVERYBODY knows the old saying that self-preservation is the first law of nature. Ordinarily one thinks of this as applying to the preservation of the individual. As a matter of fact, it applies with equal force to the preservation of the race. The instinct to reproduce and to perpetuate the race is deeply implanted in every living creature. This is the biologic basis of the natural and almost universal desire for parenthood. The thwarting of that desire is to most people a source of great unhappiness. In fact, the Jews have always regarded barrenness as one of the four major curses, together with blindness, leprosy and abject poverty.

One marriage in every ten is sterile, and so there are more than two million childless homes in the United States today. Obviously, sterility is a problem of great social and economic importance to the nation as well as a matter of supreme personal concern to many.

Forty Causes of Sterility Known

The science of medicine is making constant progress in various fields, and during the last fourteen years light has been thrown on the problem of sterility. Today doctors understand the causes of this condition better than ever before. Consequently they are able to treat their patients with greater success and bring happiness to many childless homes.

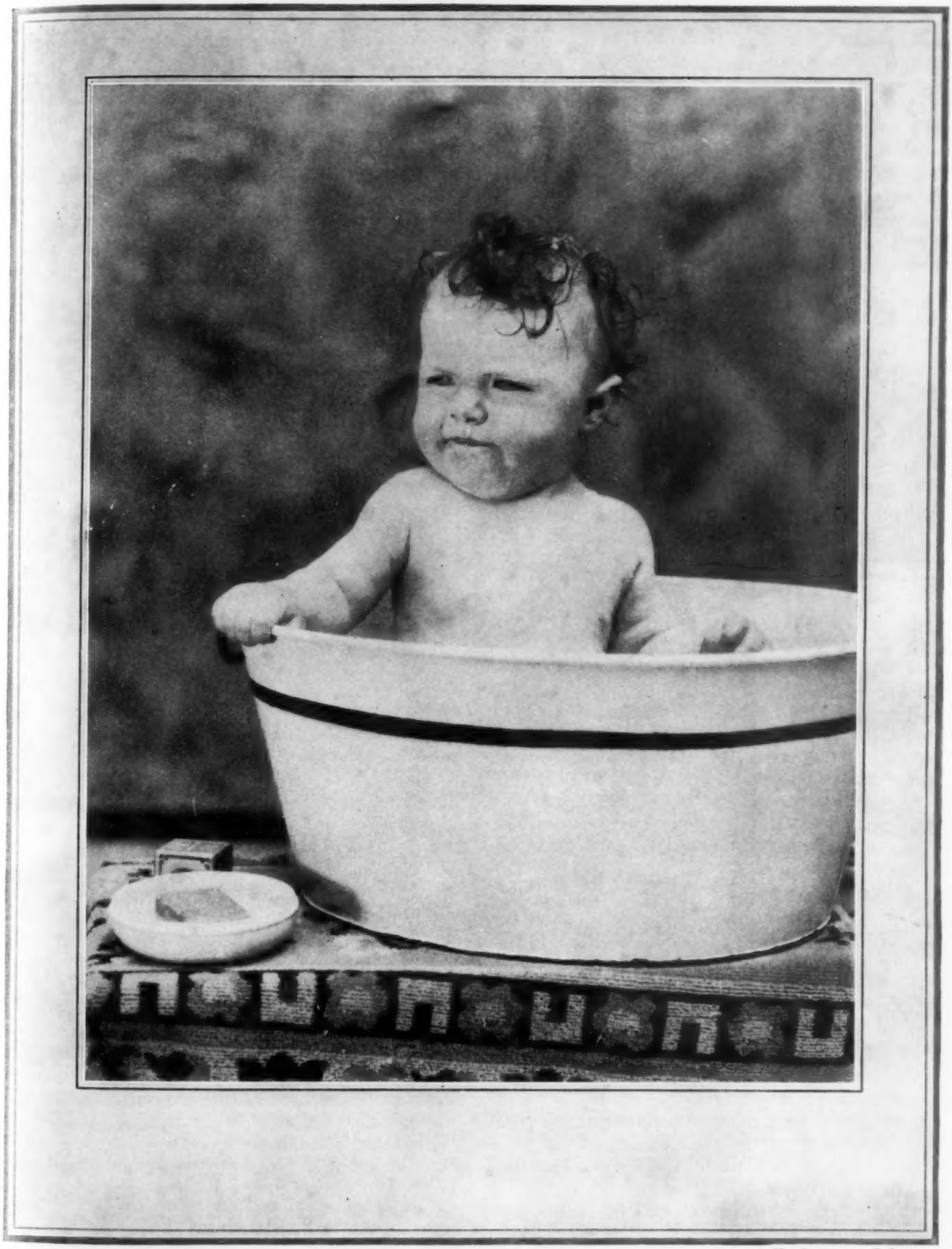
More than forty possible causes of sterility are known to exist. To decide which of these is responsible in a given case requires painstaking investigation. Several examinations and laboratory tests are necessary in order to identify the real cause and to rule out others.

A single examination is never sufficient, even though it may reveal a "tipped" womb or some other apparent abnormality. To assume that the first thing of this sort discovered is the true and only cause in any particular case would be unscientific, because other more important conditions might thus be overlooked. The complete study of a case leaves nothing to guesswork but systematically considers every possibility and finally identifies the real trouble. Such study takes time and effort but by reason of its greater efficiency saves time and trouble in the end.

Husband Is Often at Fault

One important feature of our increased knowledge is the realization that in these problems the husband requires investigation just as much as does the wife. From ancient times people have spoken of the barren woman, but seldom, until recently, of the barren man. Now it is known that in about one half of sterilities the fault is with the man. This is often true even when he appears in all ways healthy, strong and virile. Only by a microscopic test can the question of male responsibility be settled. In the past, before medical knowledge advanced to the microscopic studies made today, thousands of women were treated for sterility when in reality the trouble was with their husbands.

Treatment will depend, of course, on what is found to be the cause of the sterility in each case. Operations are often necessary, but in many cases surgery would be positively harmful and other forms of treatment are indicated. Certain new methods have been developed, which considerably increase the number of suc-



H. Armstrong Roberts

BABY'S BATH

WHAT more tender hour in the mother's day than baby's bath time! Father, when he is about, is called to admire his dripping and rosy offspring, and baby from his tub surveys his world with satisfaction. But in one out of every ten homes there is no baby's bath hour, for the marriage is sterile. Physicians can now do much to remedy the forty known causes of this condition.

cessful results. The most important item in the management of sterility, however, is and always will be the thorough investigation of every case before any treatment is undertaken, as ill-directed treatment is worse than none.

The trend of medicine today is for prevention as well as for cure. Much can be done to prevent sterility. The health of adolescent boys and girls should be wisely guarded, with particular care that they are not unduly forced in their schooling or along other lines of accomplishment. Minor disorders, like painful menstruation, should not be allowed to develop through neglect into conditions of a more serious nature.

Prospective parents ought to pay more than ordinary attention to the details of good hygiene, especially to proper diet and adequate exercise. Every effort must be made to eradicate the social diseases. Finally, patients should not delay too long before seeking medical advice, because conditions easy to correct at the age of 25 become more difficult with the passage of years and the waning of fertility.

Does Your Bread Meet These Tests?

By Florence Farnam

WHETHER you are among the 70 per cent who use home-made bread or whether you are among the 30 per cent who use bread made in the bakery, you eat bread three times a day and ought to be able to judge its merits and imperfections.

Although it is not done up in a sanitary package, this loaf of bread from southern France meets all the tests mentioned in this article.

The crust, while not the most important feature of bread, is the most striking one and forms a basis for criticism. It should be smooth, crisp yet tender, crackly yet pliable, and golden brown. If it is coarse and grainy, you can conclude that the bread was molded poorly.

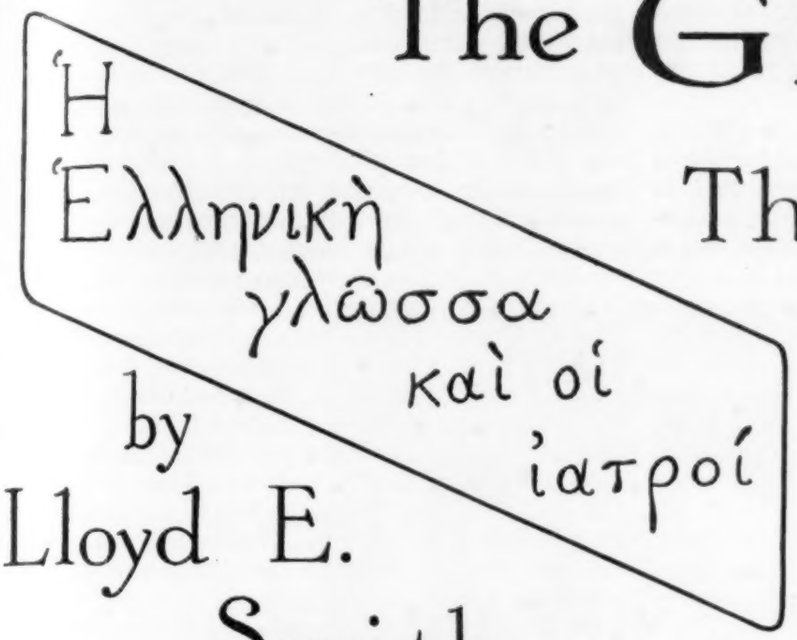
Flavor is perhaps most important of all qualities. Since the purpose of eating bread is to secure nutrition, an unpalatable product hinders this purpose and may even defeat it. Bread is made of cereals, which, if properly cooked, yield a large amount of easily digested food for a comparatively small sum of money. Bread cannot be the chief mainstay of the diet if it is not to the individual's taste. To meet this requirement, it should be sweet in both odor and taste, for flavor is made up of these two elements. A well trained nose will detect in the freshly cut loaf a lack of flavor or an approach to sourness before it can be detected by taste. If you desire a standard by which to measure the flavor of your bread, chew a grain of wheat and compare the two in taste, for the best bread has this wheat grain flavor.

Texture is another element in the judging process. Gluten is the form of protein that occurs in wheat flour. And, by the way, the peculiar value of wheat bread lies in the fact that it is one of the cheapest sources of protein. This gluten has the property of expanding and serving as a framework for the retention of air. In good bread, these cavities holding the air should be evenly distributed and small, with thin, delicate cell walls.

There should be no heavy streaks in the loaf; creamy bread is preferable to pure white bread, because the creaminess of the loaf is an indication of more protein and less starch. A good way to test bread for the distribution of cell walls and color is to hold a thin slice between you and the light.

The last test is for elasticity. A crumb should be soft, pliable and springy. One of the best ways to test elasticity is to press the cut edges together and see if they resume the original position when the pressure is removed.

The GREEK That the Doctors Speak



by Lloyd E. Smith

WHEN a physician tells us to use sodium chloride instead of simply saying common salt, we regard it as a joke. But the physician's purpose is not to mystify us but to simplify the language of medical science and to minimize possibilities of misunderstanding.

Bobby's tonsils have been removed and his mother gets a bill for "tonsillectomy." She recognizes the first six letters and assumes that the word is some secret symbol for having tonsils taken out. But if she heard or saw the word "nephrectomy," she would be entirely at a loss. She might even say, "It's all Greek to me," and she would be speaking more truth than she knew—for it is Greek!

Science Requires a Common Language

The confusion of tongues in the world would be a great handicap to science if it were not for some approach to a universal language, if it were not possible for men of science to understand each other because of a common basis of naming the various aspects of their knowledge. This common basis is usually either classical Greek or Latin; more often Greek. Doctors do speak Greek, in the strict sense of the word, but it is Greek that is readily understood. This use of Greek is not by any means restricted to the medical profession; we, too, speak Greek, although we don't always realize it.

Take that word "tonsillectomy," which, as it happens, is a hybrid, half Latin and half Greek. Such hybrids are usually avoided, but the word tonsil was already so familiar that the customary addition of the suffix *-ectomy* has been used in order to keep the language of surgery uniform, if not altogether pure. *Tonsil* is almost pure Latin, and *-ectomy* comes from the Greek which means to excise or cut out. Therefore, tonsillectomy is that surgical operation in which the tonsils are cut out.

Similarly, any word ending with the suffix *-ectomy* signifies that something has been cut out; nephrectomy means that a kidney has been removed, for *nephros* is the Greek word for kidney. We can be sure that any word beginning with *nephro-* has something to do with the kidneys. Thus, nephritis is inflammation of a kidney, the suffix *-itis* denoting an inflammatory disease, as in the familiar words tonsillitis, bronchitis and peritonitis. A nephrolith is a stone in the kidney, for *lithos* is the Greek word for stone, familiar in the word lithograph, which means an engraving on stone, a special process of printing.

Peritonitis is inflammation of the peritoneum, which is the delicate lining of the abdominal cavity, from two Greek words as follows: *peri,* meaning around, and *teino,* stretch, hence something that is stretched around. Bronchitis is inflammation of the bronchial tubes; arthritis is inflammation of the joints (from the Greek *arthron,* a joint); carditis is inflammation of the muscular or fleshy substance of the heart; and so on.

Pronouncing Words Ending in -itis

As for the pronunciation of these words ending in *-itis,* perhaps a word is necessary. The correct form is with the first *i* long, as in *fine,* and the second *i* short, as in *finish.* Webster's New International Dictionary says on this

point: "This pronunciation follows the rules of English-Latin pronunciation almost universally followed in scientific terminology (whether from the Latin or the Greek) by English-speaking scientists."

If carditis means inflammation of the heart, then you see at once that *card-* must always have something to do with the heart, and it does, because the Greek word is *cardia*, meaning heart. Thus cardiac means anything pertaining to the heart; cardialgia is a pain in the region of the heart, commonly known as heartburn; a cardio-accelerator is something that speeds up heart action; a cardiometer is an instrument to measure the force of the action of the heart. That ending *-meter*, meaning an instrument of measure, is familiar in numerous everyday words, as thermometer, speedometer and motometer.

Thermo-, by the way, signifies heat. A thermometer measures heat. A thermos bottle retains heat. Thermogenesis is the production of heat.

The word "microscope" is composed of two Greek words: *mikros*, small, and *skopeo*, to see. In like manner, a microbe is a very small living thing, from the same Greek word for small and *bios*, meaning life. A microorganism is a very small organism, or living thing, usually so small as to require a microscope with which to see it.

Distinguishing Hypo- and Hyper-

The Greek prefix *hypo-* means under. A hypodermic is something that goes under the skin, for *derma* is the Greek for skin. Dermatitis is inflammation of the skin; dermatology is the study of the skin, for *-ology* signifies a science or subject, as in such words as geology, bacteriology and pathology. Dermatosis is a disease of the skin, *-osis* being a suffix denoting a condition. Metamorphosis is a transformation or change of condition, and the much-advertised word halitosis, or bad breath, in which *hali-* means the breath, signifies a condition of the breath. Hypothermia is a temperature that is abnormally low (remember *thermos*, for heat or hot). Hypoglossal means under the tongue.

Hypo- should not be confused with *hydro-*, a prefix that signifies water. Hydrophobia is a fear of water, since *phobia* signifies fear or horror; in hydrophobia the victim is often made worse by water or the sight of it. On the other hand, the prefix *hyper-* means above or beyond the usual, as in such words as hyperacidity (excessive acid), hyperemia (too much blood; anemia means too little blood); hypertrophy, the overdevelopment of an organ, *-trophy* signifying growth or nourishment (atrophy meaning underdevelopment or no development).

Gastro- is put before anything that has to do with the stomach. Thus we know at once that gastritis is inflammation of the stomach. The gastric juice is the liquid in the stomach or secreted by the stomach. The operation known as gastro-enterotomy is an incision in the intestine made through the wall of the abdomen; *entero* signifies the intestine, and *-tomy* a cutting or incision (as distinguished from *-ectomy*, which means a cutting out or removal). Thus, gastro-enteritis is inflammation of both the stomach and the intestines, and gastrotomy is an incision in the abdomen or stomach.

Hemorrhage is derived from the form for blood, which is the Greek *haima* (transformed to *hem-* in this particular word, and to *-emia* in anemia and hyperemia), the word being a Greek formation meaning a rushing forth of blood. Thus, a hemorrhoid got its name from being a congested vein forming a small blood tumor at the rectal orifice. Hemoglobin is the red coloring matter of the blood. Words beginning with *hemo-* or *hema-* in medicine nearly always have something to do with the blood. But do not confuse this prefix with *hemi-*, the Greek for half, as in hemisphere, half a sphere.

Perhaps a word is necessary here about such diphthongs as æ and œ, occurring in words like fœtid, anæmia and anæsthetic. The present tendency is toward simplification of these words by dropping the *a* or *o* in each case, making the words fetid, anemia and anesthetic. The pronunciation remains the same, as, of course, does the meaning.

Now that the general principles of the formation of scientific words from Greek roots (basic words) are more clear, a few words of frequent occurrence in medical parlance will be given with a rapid summary of their fundamental meanings. In no case is the definition given complete; it is meant rather to be suggestive and interesting. This article is an informal discussion and does not pretend to the scope of a dictionary or even a glossary.

An Abridged Glossary

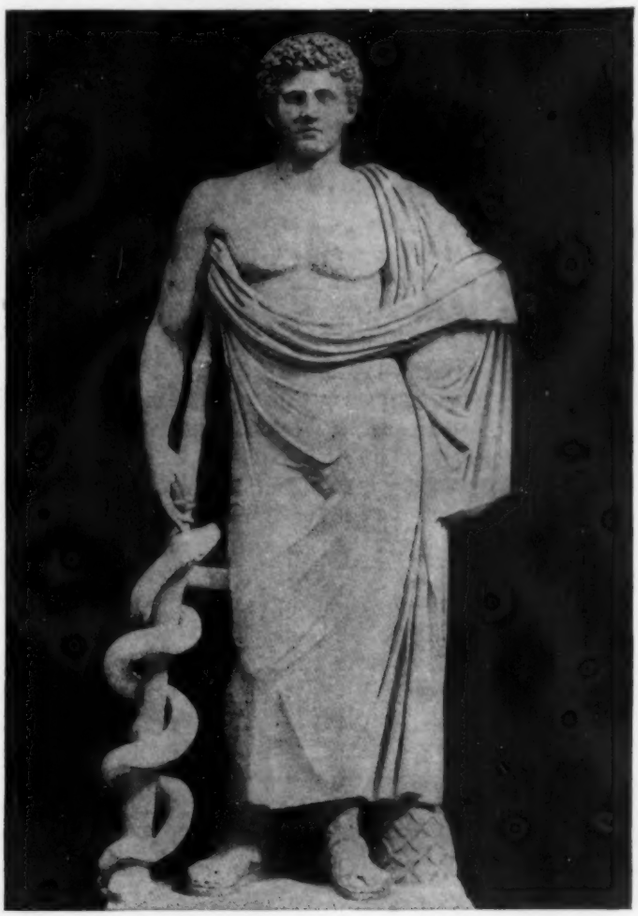
Acidosis is a condition of too much acid in the system. *Adenitis* is the inflammation of a gland. The suffix *-algia* signifies pain. *Amnesia* is the Greek word for forgetfulness. *Amorphous* means out of shape. *Analgesia* signifies without pain, a state insensible to pain. *Anesthesia* is a lack of perception or a loss of sensation. *Aneurysm* is a widening or opening, as in the wall of an artery. *Angina* means a strangling, angina pectoris being contraction of the systemic arteries. *Anorexia* is loss of appetite.

Anti- is the Greek prefix for against, as in *antidote*, something against that which has already been given. *Antifebrile* is something to allay fever. *Antigen* means to form against; a substance that causes a formation of antibodies. *Antipyretic* also means against flame and indicates something to allay fever. *Antisepsis* is against that which is rotten and is the pre-

vention of putrefaction; hence, also the word *antiseptic*. *Antitoxin* is against a poison. *Aphasia* is the Greek word for speechless. *Asepsis* is freedom from infection, an absence of putrefaction; hence, also *aseptic*. *Ataxia* is that condition in which one is without management or control.

Blepharitis is inflammation of the eyelids. *Brachial* means anything pertaining to the arm. *Bronchitis* is inflammation of bronchial tubes.

Carcinoma is cancer; it comes from the Greek word for crab, because of early ideas about its cause and formation. *Carpus* is the Greek word for wrist. *Catalepsy* is from the Greek for a seizure. *Catarrh* is a downward flow. *Catharsis* is a cleansing or purifying; hence, also *cathartic*, anything that cleanses. *Cautery* is a burning, from the Greek for a branding-iron. *Celotomy* means fundamentally the cutting of a tumor; it is an operation for hernia. *Cephalic* means pertaining to the head; *cephalitis* is inflammation of the brain. *Chiropody* has to do with the hands and feet. *Cholecystectomy* is surgical removal of the gallbladder. *Cholelith* is a bilestone or gallstone.



Aesculapius was the Greek god of medicine and Hygeia, the goddess of health, was his daughter. The original of this statue of Aesculapius is in the Vatican Museum, Rome.

Chronic, from the Greek word for time, means something of perpetual duration, as opposed to acute, or sudden. *Cirrhosis* is the hardening of an organ, but the Greek word means yellow; the usage grew out of the fact that the liver becomes yellow when so diseased. *Clinic* is from the Greek word for bed. *Coccyx* in Greek is a cuckoo; the bone got its name from its shape, which was supposed to resemble the beak of a cuckoo. *Colic* signifies a suffering in the intestine. *Coma* is a deep sleep. *Coryza* means the side of the head; hence, a cold in the head or catarrh. *Crisis* is Greek for a separating.

Derma- is Greek for the skin. *Diagnosis* means fundamentally an inquiry between. *Diaphragm* is a partition. *Diarrhea* is a flowing through. *Diastole* is a sending apart, the period of relaxation in the heart cycle. *Diphtheria* is Greek for membrane. *Dysentery* is a bad condition of the bowels or intestines. *Dyspepsia* is bad or difficult digestion.

Embryo is a swelling or growing. *Embryology* is the study of the embryo. *Encephalic* is anything pertaining to the brain or cranial cavity. *Endogenous* is that which is produced within the body. *Enteralgia* is pain in the intestines. *Epi-* is a Greek prefix for upon; hence, *epicostal*, upon a rib. *Epidermis*, upon the skin, is the cuticle covering the dermis or true skin. *Epidemic* signifies upon the people. *Epilepsy* is a taking upon or a seizure, "falling sickness." *Epithelium* is the external layer of skin cells and of the mucous and serous membranes. *Erysipelas* is Greek for reddening of the skin. *Eschar* is the Greek word for a scab or scar. *Esophagus* means food-bearing. *Etiology* is the study of the causes of disease. *Eugenics* signifies a good or healthy source or birth. *Euthanasia* signifies an easy or painless death. *Exogenetic* means produced outside the body.

There are no Greek words in the F's. *Febrile*, pertaining to fever, is from Latin.

Gastro- is Greek, pertaining to the stomach. *Glossal* is anything pertaining to the tongue. *Gonarthritis* is inflammation of the knee joint. *Gynecic* means pertaining to women.

Hectic means habitual. *Hema* signifies the blood. *Hemi-* signifies half. *Hetero-* signifies another, as *heterogeneous*, of another or different origin. *Hidrosis* is excessive perspiration. *Histology* is the study of tissues. *Homogeneous* means of the same kind. *Hydro-* signifies water. *Hygiene* signifies health. *Hyper-* signifies above or beyond. *Hypnotic* means sleep-producing. *Hypo-* signifies under.

Ichthyol, pertaining to a fish, contains debris of fish. *Idiopathic* means a disease peculiar to itself, not preceded by another. *Iris* is the Greek word for a rainbow; *iritis* is inflammation of the iris. *Iso-* signifies equality; hence, *isometric*,

of equal measure. The suffix *-itis* denotes inflammation.

Kelis, kelos and *keloid* all signify a form of tumor: hypertrophy of the skin. *Kinesalgia* means pain with motion, pain with muscular movement.

Lethargy is from the Greek Lethe, the river of forgetfulness. *Leukocyte* is a white or colorless cell in the blood. *Leukocytosis* is a condition of abnormal increase in the number of white blood corpuscles. *Lithiasis* is the formation of stones or calculi.

Macro- signifies large. *Mania* is Greek for madness. *Mastitis* is inflammation of the breast. *Mastoiditis* is inflammation of the mastoid cavity. *Meningitis* is inflammation of the spinal membrane. *Menopause* is literal Greek for the stoppage of menstruation. *Metabolic* means pertaining to a change, or metabolism. *Micro-* signifies small. *Mon-, mono-* signifies one or alone. *Myo-* signifies pertaining to the muscles.

Narcosis is a condition of numbness. *Necrosis* is a condition of death, as of tissue. *Neo-* signifies new. *Nephro-* means the kidneys or pertaining to them. *Neuro-* means the nerves or pertaining to them. *Neuralgia* is pain in a nerve or nerves. *Neuritis* is inflammation of a nerve. *Neurology* is the study of the nervous system. *Neurosis* is a condition (disorder) of the nerves. *Nostalgia* (homesickness) is a returning pain, a longing to return home.

Odontic means pertaining to the teeth. *Omo-* signifies the shoulder. *Ophthalmia* signifies the eye, usually inflammation thereof. *Optic* means pertaining to the eye or to sight. *Osteitis* is inflammation of a bone. *Otalgia* is pain in the ear. *Otitis* is inflammation of the ear.

Panacea is a cure-all, a supposed remedy for all diseases. *Paralysis* is in the Greek a loosening beside. *Para-* signifies beside, near, a part of. *Parasite* is something beside its food: something living within another organism. *Pathogenic* means producing suffering or disease. *Pathology* is the study of the nature of disease, its causes and the changes wrought in the body by disease. *Pericardium* means around the heart. *Phlebitis* is inflammation of a vein. *Phlebotomy* is an incision in a vein, the opening of a vein. *Phthisis* (tuberculosis) is a wasting away. *Pleura* means literally a rib, but refers to the sacs of serous membrane enclosing the lungs and lining the cavity of the thorax. *Pleurisy* is inflammation of the pleura. *Pneumo-* means pertaining to a lung. *Pneumonia* is inflammation of the lungs. *Podagra* (gout) is a seizure of the foot. *Polyhidrosis* (excessive perspiration) means too much water.

Prophylactic means that which guards before. *Pseudo-* signifies false. *Ptomain* is Greek for a dead body. *Ptosis* is Greek for a falling. *Pyemia* means in Greek pus in the blood. *Pylorus* is Greek for a gate-keeper. *Pyo-* signifies pus; hence, *pyogenic,* pus-producing.

Sarco- signifies flesh. *Sclerosis* is a hardening; hence, *arteriosclerosis,* hardening of the arteries. *Septicemia* means in Greek putrid blood, therefore blood poisoning. The suffix, *-scope,* means that which is used to see with, as a microscope to see small things. *Sphygmic* means pertaining to the pulse. *Sporadic* means scattered. *Stasis* means standing or at rest. *Steno-* signifies narrowing or contraction. *Stigma* means a mark. *Stoma-* signifies the mouth; hence, *stomatitis,* inflammation of the mouth. *Symphysis* is a growing together. *Systole* means a contraction.

Tachycardia means rapid heart action. *Thermo-* signifies heat. *Tuberculosis* (the first part is Latin) signifies a condition in which tubercles are produced. *Typhoid* and *typhus* come from a Greek word meaning a cloud or smoke, or stupor arising from fever.

Xanthosis is a condition of yellow discoloration. *Xerosis* is a condition of dryness.

The Luscious Lollipop

Its START in LIFE is SUPREMELY SANITARY

WHAT is more attractive to childhood than a luscious lollipop, all shiny and sticky and sweet? Its start in life is supremely sanitary, in appearance at least, for it exhibits its charms veiled in a chaste wrapping of oiled paper dextrously twisted at its extremities but unfortunately given to gaping at the seams.

To give it its due, it may pop into its youthful owner's mouth in a fair state of cleanliness. The first luscious lap provides it with a glistening coat of sticky sweetness attractive alike to flies, dirt and children. Of course in the best regulated families, lollipops are not supposed to be lent from one child to another. Generosity may be cultivated in regard to toys and bonbons but the ban on generosity with lollipops is strict. At that, it is not so easy for the immature mind to grasp the difference between sharing a box of peppermints and sharing the licks off a lollipop. However strict may be the rules, clandestine generosity in this matter is deplorably common.

Occasional Respites Are Desirable

There is much to be said for the good old-fashioned term "all day suckers." It is perhaps a trifling exaggeration but it has its points of significance. There is something about the cloying sweetness of the confection that renders occasional respites desirable. Perhaps the incessant activity of the tongue and cheek muscles in the pursuit of gustatory satisfaction brings about a certain amount of fatigue requiring periods of relaxation. At any rate, after the first moments of enthusiastic sucking, the lollipop is in great danger of being laid aside for a moment. Unfortunately in the pressure of more important matters the question of where it is laid receives scant attention. A park bench or a sand pile seems to serve the purpose equally well.

Its Splendor Becomes Dimmed

What happens to the next occupant of the park bench is no concern of ours. The safety of the lollipop is the prime consideration. It provides nutriment for whole families of flies and where their little feet have been before is a matter too painful to conjecture. Street dust blows over the lollipop and settles tenaciously on its gluey surface but its dimmed splendor is unobserved by its owner, who soon transfers the film of dust and germs to his unprotesting mouth.

The composition of the lollipop is a matter for speculation. Presumably it harbors no hidden vices in its translucent make-up. But however that may be, many are the trusting infants who have suffered from those inconspicuous but painful lesions known as "canker sores" after a debauch of lollipops.

One source of danger lurks within the lollipop, brazenly apparent for all to see but seldom recognized for what it is. What is a lollipop without a stick? Impaled upon this lethal weapon, it presents twice the charm of the ordinary hard candy. Yet the stick has the most horrible potentialities for evil. The possibilities for a child running about playing with a lollipop in his mouth are surpassed only by those for a child running with a pair of scissors in his hand.

But why should we dwell on such a painful picture? Lots of children run about with lollipop sticks half way down their throats and nothing happens to them.

The lollipop may have its use in life. The child gives up his bottle with regret and resigns his long-sucked thumb with protest. The lollipop doubtless mitigates his grief over these losses of his infancy and will serve until some more adult form of satisfaction comes his way. Aside from its potential ability to transport germs and aside from the lethal possibilities of the impaling stick, lollipops may have their points, and if these points outweigh the dangers —then long life to the lollipop!

The Southwest's Problem— Pauper Health Seekers

THE sad plight of sufferers from tuberculosis who go to the Southwest seeking health without sufficient money is one of the most serious problems now occupying organizations concerned with tuberculosis.

Practically every town in western Texas, New Mexico, Colorado, Arizona and southern California has its quota of health seekers drawn by the magnet of climate. Many of the bustling cities of the desert and mountain country owe their prosperity to the intelligence and activity of those who first came there to recover health.

In pitiable contrast to the man who recovers is the one who comes, often with a wife and children, expecting to live the simple life and get light work. Even the simple life costs some money and there are fifty candidates for every light job, says Robert J. Newton, in the *Journal of the Outdoor Life*.

Migratory consumptives have been divided into four classes: those of wealth, who often become assets to their communities; those of moderate means, who may recover and become productive citizens; those who are indigent or soon become indigent, and tuberculous tramps.

Without money and intelligence to use it, climate is of no avail, Mr. Newton insists. The Southwest is full of wanderers, sometimes working, sometimes living off the community. They grow weaker and attribute their decline to poor climate and move on to hunt a better one.

The Southwest is so new in modern civilization that it lacks public institutions supported by taxation and the highly organized, well financed charity societies to care for these miserable people.

The number of indigent wanderers cannot be estimated, for they are always moving. A study of six health resorts of the West made by the National Tuberculosis Association revealed the fact that more than half the pauper consumptives came on the advice of physicians. "Physicians who give such advice consider the medical aspects of the case and fail entirely to give consideration to the economic features—the finances of the patient, present and future, his chances for earning a living at his trade or occupation or his adaptability to another means of livelihood," Mr. Newton says.

Four things are required by the consumptive: rest, outdoor life, proper nourishment and medical supervision. He may get abundant rest and outdoor life and he may get well without a doctor, but he cannot get along without food and his struggle to get it for himself and often for the wife and children is the supreme tragedy of the whole situation.

In many cases the living conditions are worse than they would have been at the patient's home. Because of his financial condition, he is compelled often to live in close quarters and to eat only coarse, cheap food.

It is difficult to get any kind of work and the pay is meager. Work on a ranch is too strenuous and is done mostly by Mexicans.

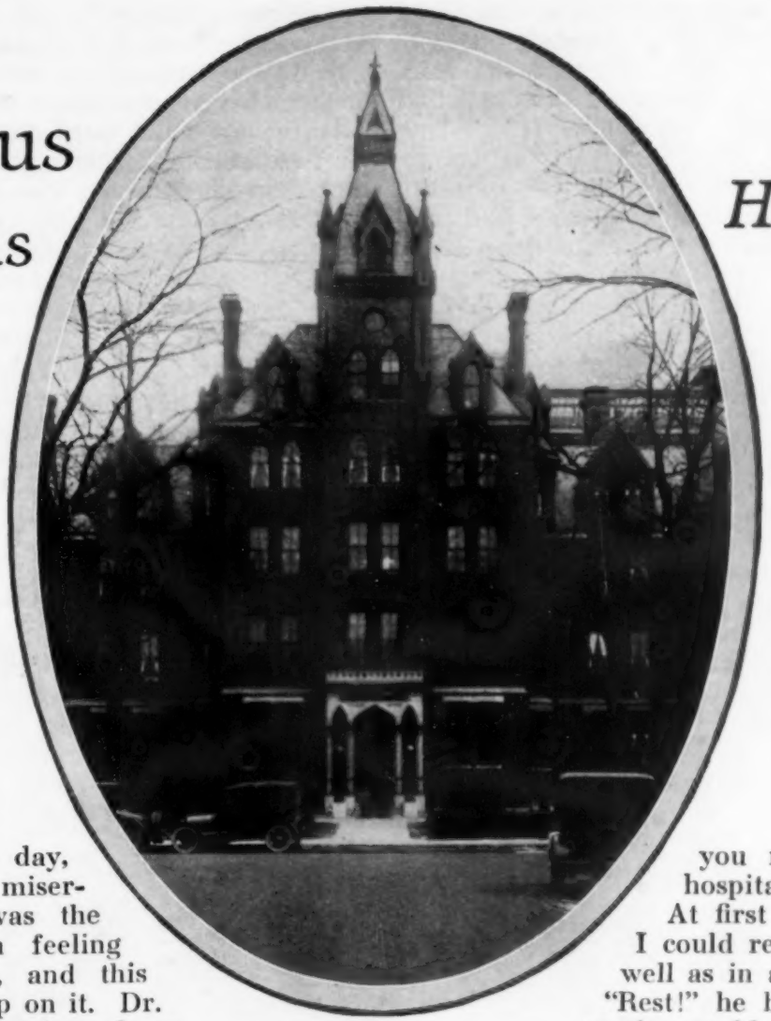
Many agencies are needed to meet the problem. The greatest need is hospital care, preferably in the home states. Connecticut, Massachusetts, Minnesota, New York and Rhode Island are the only states that have adequate provision for their tuberculous populations. Organized groups, such as fraternal organizations and churches, should care for their own members. Mr. Newton also urges the establishment of a clearing house to coordinate the relief agencies now functioning.

Two Nervous Systems

Mine and the Hospital's

The Personal Experience of George B. Lake

Wherein He Finds that He Too Has a Complicated Wiring System



Harper Hospital, Detroit.

IT WAS a gray day, leaden, stodgy, miserable. That was the way I'd been feeling for several weeks, and this day had put the cap on it. Dr. Norton, who is a member of my club, is a celebrated neurologist, and somehow I had sufficient acumen remaining to know that my nerves were "shot" and I had better pay him a visit.

Norton has the personal appearance of a hoot-owl and the easy manner of a "hanging" prosecuting attorney, but he is one of the best in his field. He spent an hour and a half pulling my soul out by the roots and pawing it over with great interest. Then he sat back in his chair and delivered himself.

"My dear fellow, it's the common story these days, only a bit more so. You think your credit of vitality in the bank of Nature has no limit, so you keep on drawing checks against it without making any deposits. Then you wake up some fine morning and find yourself bankrupt. Your only hope is in this: Nature makes you a regular allowance, and if you'll stop spending for a while—stop absolutely, I mean, not merely retrench—the income will gradually accumulate until you have a working balance once more.

"If you had come to me last spring, I'd have said: 'Take a long vacation—go to Europe, play golf, pursue the wily trout.' But that day has gone by. Recreation is too strong a medicine for you. Rest, absolute and entire, is what you must have, so it's hospital for you."

At first I maintained that I could rest at home just as well as in a hospital.

"Rest!" he barked, "Fat lot of resting you'd do! They'd consult you about your meals and your bath and the hang of the curtains, and go around on tiptoe and whisper and tell you about the friends who had called up. In these days, the place for a sick man is in a hospital."

He would not let me go to one of the hospitals in town. He said too many people knew me and would be running in to see me or calling up. He even vetoed the idea of a private room, saying that, as I was not to be permitted to read for a while, I'd have too much time to think about myself. He said that I could rest fine in a ward, and there would be enough going on to keep my mind occupied as much as was good for me, but not with my own affairs or those of my world.

So he gave me a letter to Watkins, the nerve specialist at a big new hospital over in the next state, and started me off alone, with hand baggage only. I felt rather shaky.

When I walked into the lobby it struck me all at once that this did not look like the family mausoleum, as hospital entrances used to look, but like the lobby of a first-class hotel. The girl at the desk, too, did not appear to have come directly from the operating room or the

morgue, and when she asked what she could do for me she gave me an engaging smile.

"Dr. Watkins is in the building," she said, "I'll get in touch with him in a minute," and she touched a button.

Ten Acres of Floor Space

I was filled with childish wonder. I had read that this hospital had ten acres of floor space and two miles of corridors, and here she touched a button to call him, just as though he were sitting at a desk in the next room and would come ambling in in a minute.

"How do your reach him?" I asked.

"Silent-call system. There's the phone now. Dr. Watkins says you are to come right up to ward 17 and he'll meet you there," and she dimpled at me as she beckoned for an orderly to take my bags.

At the door of the ward we encountered a big, shaggy man with rumpled clothes and the keenest gray eyes I ever saw, but with something in them—some wisdom and understanding—that made the back of my throat smart and caused me to feel that I was ready to let go and be taken care of.

The ward was big, sunny and quiet. Men were lying in several of the beds, which were not white enamel but looked as if they were made of walnut. The Windsor chairs at the bedsides were walnut, too, and the spreads had gay blue and white stripes. It looked wonderfully homelike and restful.

When I was in bed I began to shiver, so the nurse brought an electric pad and plugged it into a socket at the head of my bed, and I was soon warm.

A nurses' station accommodating twenty-four rooms, Henry Ford Hospital, Detroit.

I woke up in the night in a panic. I was lost! The upper part of the room was in darkness but the floor was bathed in a soft radiance. I seemed to be afloat on a raft in a sea of light.

I remembered that the nurse had called my attention to a little, pear-shaped affair on the table beside my bed and told me to ring if I wanted anything. I rang! In the stillness—the only sound was the gentle snoring of one of the other patients—I heard a soft, purring sound, somewhere far off, and a little, round, red eye gleamed out at the head of my bed.

It was perhaps three minutes—maybe less—before I saw the nurse coming swiftly and silently down the ward, but it seemed an hour or two. She came straight to my bed.

"What is it?" she whispered.

"I don't know. I woke up and felt lost and afraid. Guess I'm all right now. How did you know it was I who rang, so that you found me at once in the darkness?"

"The red light," and she touched a switch and blinded the eye at the head of my bed.

"When you ring it turns on that guide light and it burns until the nurse comes and turns it off. I'll get you a drink of water. Ring again if you are restless or uneasy and I'll give you some medicine the doctor ordered."

But I slept until the morning sun woke me.

I Am Overhauled

That day they started in to overhaul me. They wheeled in an apparatus that the nurse said was a bedside x-ray machine and plugged it into the socket at the head of the bed and took pictures of my "internal workin's." The man in the next bed had a contrivance filled with electric lights put over him, under the bedclothes, and they plugged into the socket for that. It was the same principle as coupling up the percolator, the toaster or the vacuum cleaner at home, I suppose, but it seemed rather wonderful here.

When they went over my chest my heart seemed to excite a good deal of interest and they told me they were going to make an electric tracing of its action. I'd heard about that sort of thing before, and how the delicate apparatus was usually set up in the basement, to avoid vibration.

But they made no preparations to move me. An intern in a white suit came in and connected some things to my right ankle and my left wrist, and then reeled out a long cord into the hall and came back.

"Don't I have to go to the basement?" I wondered.

"Not in this hospital. The whole building is wired for the electrocardiograph and there are sockets in every corridor. I just plugged into the nearest one and they are ready to make the record now, so lie very quiet."

In the afternoon they asked if I'd like to hear some music and, when I assented, they plugged into another socket and put a set of ear phones on me so that I heard a good orchestra concert. It was restful and pleasant, and those who were in no mood for music were not disturbed.

In a few days the quiet, orderly, unhurried but strictly regulated life began to get in its work and I felt the iron bands which had been tightening about my brain for weeks begin to loosen. The utter physical and mental rest were having their effect, too. But my heart continued to interest them.

One morning one of the big specialists came in and said, "Dr. Watkins says we may give you a ride on a litter today and I wonder if you'd mind letting the class listen to your heart. It is somewhat unusual."

"How many are there in the class?" I inquired, in some trepidation.

"About 200, but that will make no difference. Our amphitheater is wired for the electric stethophone, so that only one stethoscope will be applied to your chest and all the students will hear the sounds with their own stethoscopes, applied to the connections at their seats. They need not even see you if you prefer not, for we can put a screen around your litter."

Photos Courtesy Hospital Buyer

Physicians' directory, Baylor Hospital, Dallas, Texas.

Giving the Students an Earful

I consented and took the ride. I don't, of course, know what they heard, but every one seemed highly delighted, so it must have worked satisfactorily.

As I improved steadily from day to day, Dr. Watkins began to have talks with me about various things, but especially this nervous system of mine that had thrown me down in a pinch. He showed me why dogs and horses do not have nervous prostration, because their systems are relatively simple, but as our parts and organs become more and more complicated it requires a more and more elaborate system of connections to keep the whole plant working together smoothly. And the more complications the more chances are there for something to go wrong, as had happened in my case.

One day the nurse came in carrying a telephone instrument and said, "Your wife wants to talk to you." She plugged the thing into a hole in the wall and set the instrument on the bedside table, and there we were! Of course the telephone is no novelty to the man of today, but that I could sit there, on the side of my bed, and talk to my wife in our living room 200 miles away did intrigue me.

That night I got to thinking about what the doctor had said about the increase in complications in an organism requiring an increase in the facilities for communication, and I wondered if a hospital wasn't an organism, too—this one was certainly a good deal more complicated than the ones I used to see in my boyhood—and if, perchance, I had not been getting some glimpses of its nervous system.

I asked the doctor about it in the morning and he said that, while it had never struck him in that light, it was undoubtedly true, and wondered whether I'd like to study the nervous anatomy of the institution. I jumped at the chance.

I Study Nervous Anatomy of Hospital

We did not go into much detail with the lighting and power system. I knew something about how the ordinary lighting and bell wires are built into the walls of a house—though not much—and the use of the plugs to run diathermy and ultraviolet ray machines and to light up microscopes are only special uses peculiar to the hospital. Even the night lights, which had mystified me that first night, were just ordinary lights, set under hoods, about 18 inches above the floor, giving plenty of light without disturbing any one.

We went back to the place where I had entered and looked up that silent call system. Every doctor has a number, and at every cross corridor there is a number box. When the girl at the desk presses the proper button the number of the doctor wanted (or sometimes it is a special colored light) flashes out and burns until he sees it and goes to the nearest telephone to find out what is wanted.

Of course the telephones, even the portable ones at the bedside, are just like those in our houses, the same as the lights are, but the more complicated organism requires a much more elaborate nervous system.

The radio also is sufficiently familiar, but a radio system all over the hospital was something else again.

When it came to the electrocardiograph and the stethophone the matters were too technical for me. The latter apparatus looked something like a radio set. But I could understand that here were kinds of nerves that the ordinary house does not have at all.

The Ten Operating Rooms

There were other things that were simple. The hospital had ten operating rooms and, in order that some unauthorized person might not butt into one when an operation was going on, a light burned over each door when the room was in use, as a warning to trespassers.

When surgeons are doing operations on the nose and throat they want the room dark and the operator uses a headlight, so two of the rooms had dark curtains, between double windows, that rolled up and down when a button was pressed.

I asked the doctor what would happen if a thunderstorm should come up and the lights should go out while an operation was on, and he showed me an accessory lighting system operated by storage batteries in the basement. It had an automatic arrangement whereby, when these lights were turned on, a small dynamo immediately recharged the batteries.

I think I never spent a more profitable six weeks in my life, for I went home feeling as fresh and eager as a boy.

But that wasn't the best of it. I'd learned a lot about this nervous system of mine and how to take care of it. The study of the hospital's nervous system helped in the learning. There were all those wires, hidden in the walls, doing all those ordinary and extraordinary things, and somebody had to plan all those and put them there when the building was constructed.

And here was I with a complicated wiring system built into me, out of sight but operating on an orderly plan. I saw a great light.

Best Place for Sick Person

Another thing that made a profound impression on me was the enormous progress that must have been made in hospitals in the last few years. When I was a boy the hospital was considered as a place to which they sent people for operations or when they were about to die. Unfortunately, a good many otherwise sensible people still feel that way. Now I know that the hospital is the best place for any sick person who wants to get well as quickly and pleasantly as possible.

The hospital is the place, in an emergency, but hereafter it will be more sleep and more golf for me, less food and less worry, and more play and fewer business conferences. The business has to go on, but I can do a lot more of it in twenty years, under low pressure, than I could in two years (which would have been my limit) under the head of steam I was carrying before I studied the nervous system of the hospital, and my own.

Face Armor for the Working Man

By Walter Benton

A mine rescue, showing the type of oxygen-breathing apparatus used by the rescuing party after fires and explosions.

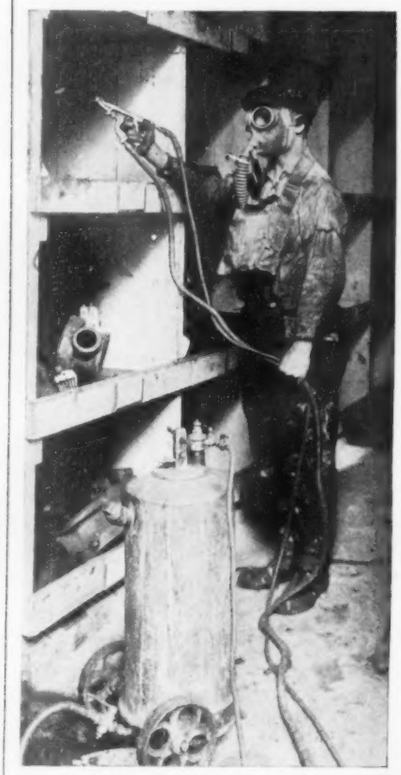
IN THE mines, mills and factories that go to make up the vast industrial system of the United States, there is encountered a great variety of gases, fumes, dusts, smokes and vapors that are exceedingly harmful to the workers and therefore must be guarded against by the wearing of protective devices over the face. Chemists and inventors, in and out of government service, are meeting the situation by devising many different types of masks and respirators, and numerous lives are being saved daily by the use of such grotesque face armor.

The practice of providing the worker with protective devices of this nature received its first great impetus following the adoption of the gas mask as a means of defense against the deadly gases suddenly introduced during the World War. After the war, returned soldiers, reentering industry, began to use their army gas masks as a means of protection against gases of various sorts encountered in emergencies in burning buildings, in mine fires and elsewhere.

The army gas mask, however, while affording protection against certain poisonous gases, does not supply the wearer with the oxygen necessary to life, and it was found, at the cost of many lives, that this mask would not carry the wearer through many varying situations. It has therefore been necessary to devise a considerable variety of masks to afford protection against such gases as ammonia gas, used in refrigerating plants, and carbon monoxide found in mines, at gas plants and blast furnaces and in innumerable other places. In the devising of special types of masks to combat special gases, the federal Bureau of Mines, through its long experience with poisonous mine gases, has been active.

Enginemen and firemen on locomotives, in passing through long railway tunnels, are frequently subjected to excessively high temperatures, with the accompaniment of dense clouds of sulphurous smoke. To help the enginemen through the tunnel, the Bureau of Mines has developed a pocket-size canister or respirator, filled with an absorbent mixture of activated charcoal and soda-lime and containing filters of Turkish toweling. With this appliance clipped over his nose, the engineer breathes only the wholesome content of the atmosphere and may defy the worst smoke conditions.

City firemen are constantly exposed to dangerous concentrations of poisonous gases and vapors. Smoke from burning wood, paper and refuse contains the deadly carbon monoxide,



Painter using gas mask while working in deep bin in which bad ventilation prevails.

At the right is the all-service gas mask devised by chemists of of the bureau of mines. It is believed to afford protection against more varieties of poisonous fumes, gases and vapors than any other device.

Type of mask designed for use of city firemen is shown below.

For engineers in tunnels.

The worker below is wearing a gas mask for protection against chlorine gas contained in tanks at a water purification plant.

and various other insidious gases are encountered at times. A gas mask especially devised for firemen has been developed by the Bureau of Mines. This mask also contains charcoal for removing the poisonous vapors from incoming air. Cotton wool is used for filtering smoke, dusts and mists, and various chemicals purify he air of carbon monoxide, ammonia and acid gases.

In rescue work in mines, following fires and explosions, various types of what is known as self-contained mine-rescue oxygen-breathing apparatus are worn by the hardy fellows who grope through the underground murk and gloom in the hope of saving the huddled survivors. This type of apparatus differs from gas masks and respirators in that it furnishes the pure oxygen necessary to sustain life. The apparatus will see the wearer through any sort of bad atmosphere for at least a period of two hours.

Self-Rescuer Good for Half Hour

A handy little device called the carbon monoxide self-rescuer, which is so compact that it may be worn on the belt, contains oxygen sufficient to support human life for a half hour. Miners entrapped underground by explosions may use the device to tide them through the emergency. The self-rescuer also comes in handily in the natural gas industry, at city gas plants, at iron blast furnaces and in numerous chemical and metallurgical operations, as carbon monoxide may be encountered frequently in such surroundings.

Exceedingly dangerous vapors are frequently given off from tanks in which gasoline is stored. For working in such tanks, employees are often equipped with what are known as hose masks, which provide a mouthpiece for breathing and supply fresh air through a long hose which runs from the tank back to the uncontaminated atmosphere.

All-Service Mask Best Development

Chlorine gas, used in purifying water, is dangerous, and employees of city water works frequently are obliged to put on face masks. Painters working in close spaces, such as the holds of ships, have been provided with a special mask to afford protection against fumes. In the numerous important chemical industries, the presence, under certain conditions, of various unwholesome gases and vapors makes it imperative for the workers to wear masks or respirators. The presence of obnoxious dusts in a great variety of industries demands the use of respirators that sift the dusts from the air inhaled through mouth or nose.

A mask recently developed by the Bureau of Mines, known as the all-service mask, is believed to afford protection against a greater variety of poisonous atmospheres than any other mask so far devised.

BLIND

Around his gallant soul the twilight fell
With quiet hush. Then through the gathering night
He stretched a backward hand. Groping he found
Dim memory's lamp and made a sudden light.

VERE DARGAN.

Breakfast Food Facts

By Lulu G. Graves

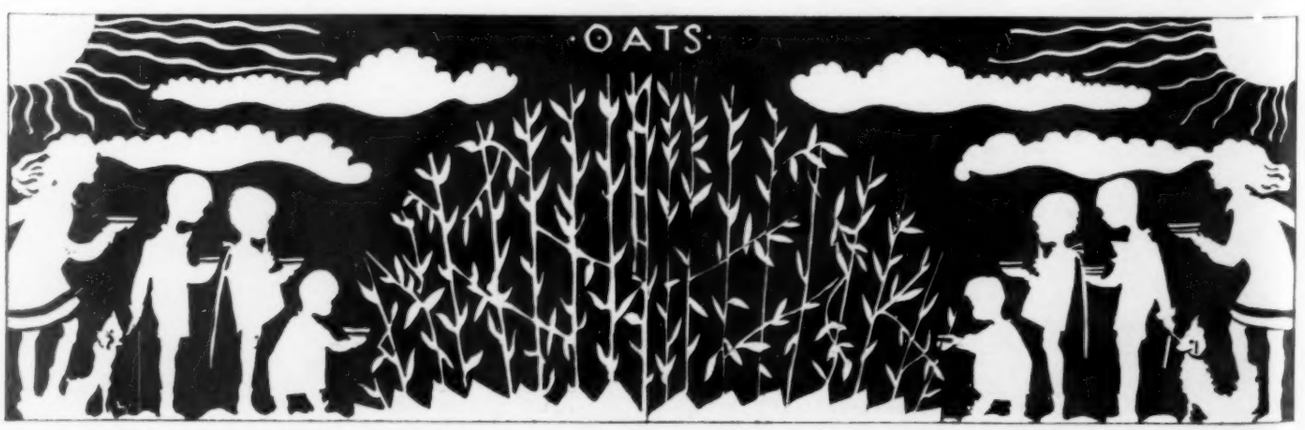
A COMMON fault in dietary habits is that of eating an inadequate breakfast. The no-breakfast fad may as readily be the cause of harm as of benefit, depending on the individual. An adult may not be greatly harmed by the practice of eating a meager breakfast if his menu for the other meals of the day is properly selected, but the growing child needs energy-producing food early in the day as well as all day.

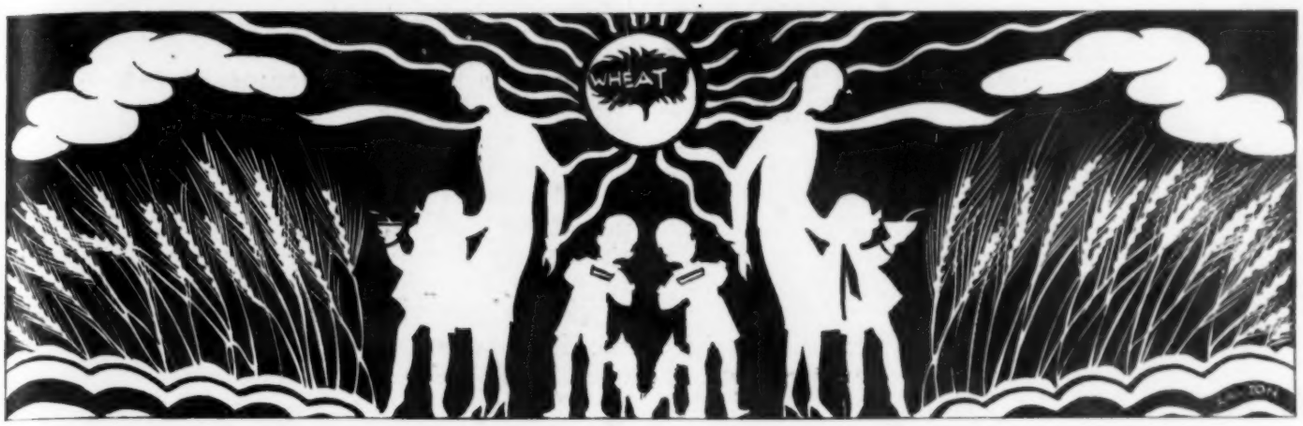
The inadequate breakfast usually results from one of two conditions. The first may exist in any home; the family sleeps late, then the proverbial morning rush ensues to get each member off to business or to school. It naturally follows that the breakfast is hurriedly eaten, and it may be limited in amount or so hastily eaten that it is not well masticated. The nervous tension has a tendency to retard digestive secretion and a continuation of this practice may after a time cause disturbance in the digestive tract.

The second condition is more prevalent in the homes of families of limited means or among the foreign born when only one meal a day is the general rule. The child has no breakfast, or possibly only bread and coffee. Studies made by several people in different parts of the country have shown that about one third of the children from these homes go to school with no breakfast, or practically none. Gertrude Gates Mudge has reported a serious lack of energy-producing foods among Polish children.

To meet the first condition, a food is needed that may be eaten with a minimum loss of time and that will be readily assimilated; for the second condition, a food must be inexpensive in addition to these requirements. Probably no food meets all of these requirements better than cereals served with milk or cream. With the improvement in dietary habits cereals are becoming more popular, but they have not yet assumed their rightful place in the menu.

When properly cooked, cereals are wholesome, palatable, easily digested and well assimilated. They are high in energy-producing material and their bland flavor enables them to be combined with various other foods. They are available in all seasons and in practically all parts of the country. They may be obtained in sealed packages, which implies a sanitary product, or they may be purchased in bulk at a slightly lower price. They are economical, requiring little labor for preparation and cook-





ing, and constitute one of the few food materials in which there is no waste.

Children, especially, need these foods; if some form of cereal is given to the young child daily, he forms a habit of right eating, which will not have to be reformed.

The nutritive value of cereal foods is much the same, carbohydrate being the most abundant food material. Protein, the next in amount, is present in much smaller quantities than carbohydrate. Cereals contain little fat. The mineral matter is in small amounts but is sufficient to be important; when outer layers of the grain are removed, some mineral, protein and cellulose are lost. Breakfast foods are a fairly good source of vitamin B, may have small amounts of vitamin A and are practically negligible as a source of vitamins C and D.

The amount of carbohydrate and fat varies slightly in all cereals in the raw state, but there will naturally be some differences in the foods as served, as a result of various methods of preparation. The protein is not alike in all cereals, but as all of them contain a mixture of protein, they have essentially the same efficiency in human nutrition. All are deficient in some of the proteins, but since milk is rich in the forms in which the cereals are lacking, the combination of cereal and milk provides a well balanced serving.

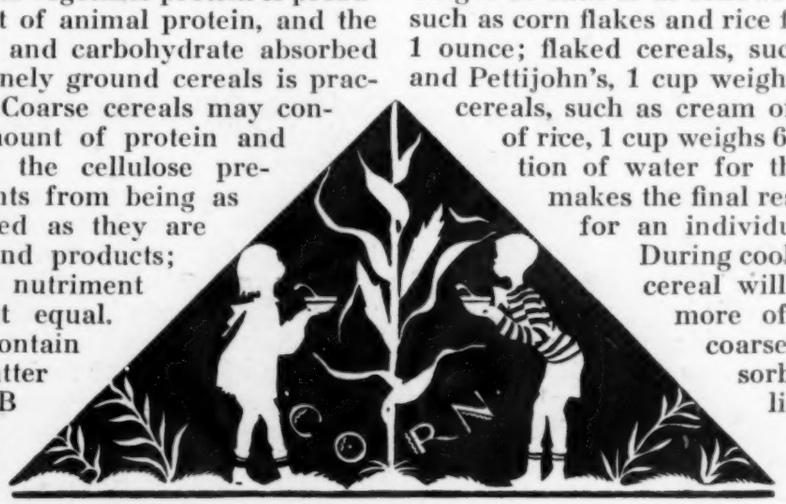
The digestibility of vegetable protein is probably as good as that of animal protein, and the amount of protein and carbohydrate absorbed from coarse and finely ground cereals is practically the same. Coarse cereals may contain a greater amount of protein and carbohydrate, but the cellulose prevents these elements from being as completely absorbed as they are in the finely ground products; thus the available nutriment is probably about equal.

Coarse cereals contain more mineral matter and more vitamin B and their bulk stimulates peristalsis, the wormlike movement by which the alimentary canal propels its contents. They are sometimes recommended for constipation. The healthy person can safely use any of these he chooses for variety, convenience or economy, but one who is ill, particularly if there is a disturbance of the digestive tract, should use them only on the advice of a physician who is familiar with the condition.

The lacking protein and vitamins may be supplied by milk served with the cereal or by other foods on the menu. The protein content may be further increased by adding gelatin to the milk served on cereals, or with which it is cooked, in the proportion of 1 teaspoon of gelatin to 1 pint of milk.

Cereals may be classed as: (1) raw cereals, prepared by removing more or less of the outer coating of the grain and crushing to different degrees of fineness, as cream of wheat and corn meal; (2) partially cooked cereals, generally prepared by partially cooking by steam, then rolling into flakes, as Pettijohn's rolled oats; and (3) prepared, or ready-to-eat, cereals that have been completely cooked during process of manufacture and then have been treated by malt or some other sweetening and flavoring substance.

Ready-to-eat cereals and the flake cereals are more bulky than the ground. The approximate weight of each is as follows: prepared cereals, such as corn flakes and rice flakes, 1 cup weighs 1 ounce; flaked cereals, such as H-O oatmeal and Pettijohn's, 1 cup weighs 3 ounces; ground cereals, such as cream of wheat and cream of rice, 1 cup weighs 6 ounces. The addition of water for the cooking process makes the final result much the same for an individual service.



During cooking 1 cup of rolled cereal will absorb 2 cups or more of liquid, 1 cup of coarsely ground will absorb about 4 cups of liquid, and 1 cup of finely ground cereal will absorb 5 or 6 cups of

liquid. The amount of liquid required depends on the method of cooking and the consistency desired. In rapid cooking more of the water is lost by evaporation than would be lost by using a fireless cooker, for example; and some persons like a thick mush while others prefer a thinner product. Therefore, the addition of water increases the bulk, but it also makes the portion more dilute. It is well to remember that in purchasing, it is weight that counts and not bulk.

For children, persons who are underweight or tuberculous patients, it is an advantage to cook cereals in milk; if the expense of this method is a burden, part milk and part water may be used. This not only increases the food value but adds to the flavor. Cooking by this method and serving with cream provides a food with a high caloric value, but for a normal person it may be too high and milk may be substituted for cream in the serving.

Best results are obtained by cooking cereals an hour or longer. By long cooking a more pleasing flavor is developed and the intercellular tissues are softened. It was first thought that cereals should be cooked a long time because the raw starch was not digested in the body. Students of nutrition have found that the raw starch grain is digested, but that a longer time is required than is needed for digestion of cooked starch. With the other advantages in the longer cooking, there is no reason to discontinue this method and to impose any extra burden on the digestive tract when it can be avoided.

When a coal range is used, or if the gas or electric range is of the late type having an insulated compartment, this process is a simple matter, but if a housewife has none of these conveniences, anything requiring long cooking is not so simple. A double boiler is always desirable, but if one has none the same effect may be obtained by placing the vessel in which the cereal is being cooked in a larger pan containing water. In order to have water underneath the inner vessel, a few nails or small pieces of metal may be put into the larger receptacle, or a couple of metal forks may be laid in the bottom on which the smaller vessel may rest.

For Camps and Summer Cottages

In camps, summer cottages and other places in which kitchens are not completely equipped, various devices for cooking must be used. One method of helping is to start cooking the cereal when the evening meal is being prepared, using a pan that will sit inside a kettle in which vegetables or some other dish is being cooked for the evening meal. The cereal may be brought to the boiling point, then placed in the top of the kettle and allowed to cook while the meal is being prepared. By this means it may cook an hour or more, thus shortening considerably the preparation time the following morning. A few tablespoonfuls of water poured over the top of the cereal when the cooking is finished will prevent the formation of a stiff layer during the night. If an ordinary gas stove is used, the cereal may be brought to the boiling point and then the cooking finished over the simmering flame, thereby reducing gas consumption.

Mary Swartz Rose says a well cooked cereal should appear in the menu of a child at least once a day. She advocates the serving of one kind for breakfast and another kind for supper during the years of more rapid growth.

If cereal is well salted during cooking, the flavor is improved. Adding sugar to cereal is adding a concentrated form of carbohydrate to a food that is composed largely of that element and is a result of an artificial appetite. Furthermore, it prevents one from enjoying the true flavor of the cereal.

Analyses of the percentage composition of the various kinds of cereals show that each is similar to the grain from which it is made and that there is little difference in their nutritive value in the raw state. They may or may not be made from the whole grain; if made from the whole grain, there is a higher percentage of cellulose, or fiber, and minerals present. Cellulose is valuable chiefly as bulk; not enough is utilized by the body to be of much consequence. Some of the whole grain products are partially cooked during the process of manufacture, such as H-O oatmeal and Pettijohn's. These are cooked by steam to soften the grain, then they are put through heavy rollers to crush them into flakes. The cooking process is not thorough and to obtain a satisfactory result it is advisable for the housewife to cook them longer than directions on the package state.

Wheat Cereals

In this country wheat is consumed in far larger amounts than any other cereal. While bread is the most widely used form in which wheat is consumed, this does not prevent wheat cereals from being among the favorites. The finely ground wheat grain, cream of wheat or farina, and the flaked or rolled Pettijohn's, are typical of the wheat cereals requiring cooking that are widely used and deservedly so.

Pettijohn's is made from the whole wheat grain. It is steamed and rolled into flakes. The bran is not coarse and objectionable as it is in some products. For this reason it makes a pleasing cereal and it can also be used in muffins or cookies.

Cream of wheat, or farina, is a finely ground cereal from which the outer layer of the grain has been removed. The small granules and bland flavor make this cereal adaptable for use in combination with other foods and for prac-

tically all purposes that any cereal requiring cooking may be used.

Cream of wheat has been found of value in infant feeding formulas and in making gruels for the ill person who is restricted to a liquid diet. In both of these instances it must be thoroughly cooked. It adds flavor and nutrition to broths and to stock soups. As a cereal it is acceptable plain with either milk or cream. Adding raisins or dates during cooking makes it attractive if one does not enjoy the plain cereal.

Fruits Are Helpful Additions

These fruits, as well as prunes, baked apples and bananas, contribute some of the minerals in which cereals are lacking, at the same time increasing both food value and palatability. Fresh berries contain vitamin C, another element lacking in cereals. Peaches, fresh or canned, and other canned fruits may be used. A cube of jelly or a spoonful of marmalade adds a touch of color, which may stimulate a lagging appetite. If one uses sugar on cereals habitually, brown sugar may sometimes be substituted for white.

These additions keep the breakfast menu from becoming monotonous and may provide the entire meal for people doing little physical labor. However, it is well for the normal, healthy person to eat cereal for itself alone part of the time.

Puddings may be made of this cereal, either steamed, boiled or baked. The addition of eggs and milk make of them an inexpensive food high in energy content and containing other food elements in satisfactory amounts. Honey, maple syrup, brown sugar or fruits may add to the appeal of these puddings; a sprinkling of nutmeg or cinnamon on the top, lemon juice, orange juice or grape juice may be used for flavoring.

Cream of wheat may be used in escalloped dishes of vegetables, meat or oysters, or with meat, eggs or vegetables as a stuffing for peppers or tomatoes. Cheese combines well with it in these and other dishes.

Oatmeal is relatively rich in fat and protein. As is typical, this means it does not keep well. It may become musty or infested with insects, a condition one must watch when buying oatmeal in bulk. Oatmeal is eaten as a cereal, plain, without thought of monotony, more than any other cereal. When one wishes variety, the same combinations are possible with fruits and other materials as are mentioned with cream of wheat.

Oatmeal gruel, made by cooking oatmeal in water in proportion of 1:8, then straining, is frequently given to patients requiring a liquid diet, and oatmeal water is used in preparation for infant feeding formulas. Besides adding to the carbohydrate content of the formula, it is often prescribed for its laxative effects. Oatmeal cookies are good to eat and a good food for both children and adults.

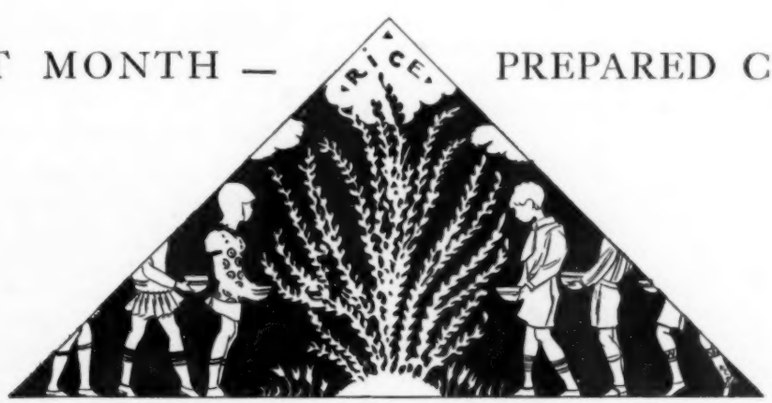
Cream of rice is a delicious breakfast food, made of granulated rice and a small amount of powdered skim milk; it is not as widely known as it deserves to be.

Desirable Sources of Energy

Because children are very active, they must have sufficient energy-producing foods. Cereals, starchy vegetables and fruits such as apples, prunes and bananas are desirable sources of energy. Cereals and whole milk with or without these fruits make an adequate meal, providing the necessary minerals and vitamins as well as the other elements.

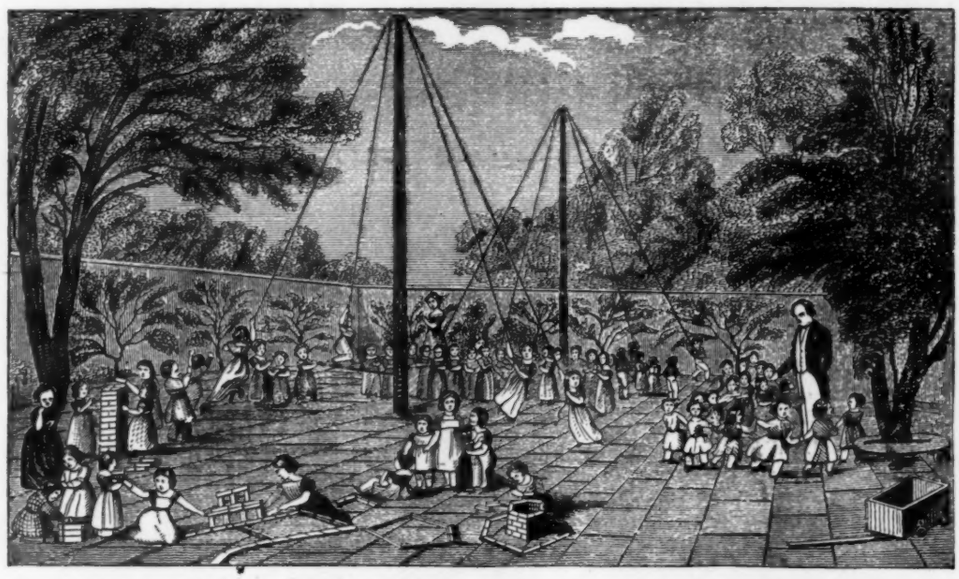
Lydia J. Roberts says, "An active boy of from 13 to 15 years may require from 4,000 to 5,000 or even more calories. He may eat all his stomach can hold and still not cover his outgo unless such concentrated foods as butter, eggs, cheese, milk, cream, marmalade and peanut butter are added generously to his essential diet of vegetables, milk, fruits and cereals."

NEXT MONTH — PREPARED CEREALS



A Project in Health Education

By Harriet Wedgwood



Model playground for an infant and primary school, as shown in Barnard's School Architecture, published in 1860.

SEVERAL writers on health education have recently emphasized the value of making use of the immediate environment in teaching health to pupils. Much can be learned about what constitutes a healthful environment by making a study of school building and grounds and comparing the findings with accepted standards in respect to sanitation, heating, lighting, seating, cleanliness, water supply, drinking fountains, toilets and other features that affect the health and well-being of pupils. This will necessitate a study of acceptable standards.

Healthful School Buildings

Pupils and teachers should know what the best temperature for a schoolroom is, and how temperature is tested and regulated; what the current theories are in regard to ventilation; how a room should be lighted and how shades should be adjusted; what types of bubbling fountains are satisfactory; when a seat and a desk are properly adjusted; why facilities for washing the hands should be provided; what types of buildings are preferable from the point of view of health; what provisions in the way of equipment are made to protect the health of pupils and what essential or desirable features are lacking in their own building.

A useful reference in making such a study is Section VI, "Essentials for Healthful School Buildings," published by the U. S. Bureau of Education, 1923. It is obtainable from the government printing office, Washington, D. C., for 10 cents.

Another useful reference, showing the use that may be made of the school environment in health teaching, is the chapter on this topic in a "Study of Health Education in Secondary Schools" recently published by the American Child Health Association, 370 Seventh Avenue, New York.

Some cities, among them Milwaukee, have printed instructions for the janitors of school buildings describing some standards to be maintained and the janitor's responsibilities in maintaining them.

It will be of interest to the children to compare the earliest school established in the locality with the school the children now attend. Did the children who attended those early schools lack some of the advantages that the

WARNS SIR RALPH VERNEY IN 1690—

LET not your girle learn Latin or short hand; the difficulty of the first may keep her from that Vice, for soe I must esteem it in a woeman; but the easinesse of the other may bee a prejudice to her; for the pride of taking sermon noates hath made multitudes of woeman most unfortunate. Had St. Paul lived in our Times I am confident hee would have fixt a *Shame* upon our woeman for writing as well as speaking in church.

—*Child Life in Colonial Days.*

present pupils have, looking at it from the health point of view? What was the type of building? How heated, lighted, ventilated and kept clean? Where was it located? Was it surrounded by other buildings, or by fields and woods? Did children have space to play outdoors? What did they play? Did they bring lunches to school? Of what sort? Did the children who attended those early schools have some advantages that the present pupils lack?

An octagonal schoolhouse called a "model of fitness and close economy." Through the lantern at the top, light and ventilation were admitted, except in extremely hot weather, when the windows were opened. The advantage of boarded windows was that the scholars were not distracted by occurrences and objects out of doors and there was little expense for broken glass. (From Barnard's School Architecture.)

The classes in home geography and home history could contribute to such a study.

Early types of schoolhouses in the East, South, Middle West and West might prove an interesting study for a class or for an individual student.

An exhibit of schoolhouses, past and present, could be made a class or school project. Other projects include models, book illustrations (or copies made by pupils), interesting source material found by children or teachers and put into a scrap book, charts showing the standard requirements for health and how their own school measures up to those requirements, pictures of fine types of school buildings in various parts of the country, stories by pupils (based on authentic material) of pioneer school children in the little red schoolhouse of New England, the log house of Indiana or Illinois, or the sod schoolhouse of the plains. There are many people living who attended school in a sod schoolhouse; these persons could be interviewed and their experiences could be written by the children and become a permanent addition to the school or town library.

Reference Books

Some child might prefer to learn something about the buildings in which some of the presidents or other national figures went to school.

Earle's "Child Life in Colonial Days," Chapter III (Macmillan), shows pictures of old schoolhouses, tells of the substitutes for windowglass and of what the old schoolroom looked like on the inside.

Hamlin Garland, in his "Boy Life on the Prairie," Chapter III (Allyn and Bacon), describes the first school he attended in Iowa.

Collections of historical papers, such as the Massachusetts Historical Collections (Boston Public Library), contain letters and papers that throw light on the health problems of colonial times as well as on historical matters, and often tell something about the beliefs and customs of the people in respect to disease. Series 1 of the Massachusetts collection contains a letter by Levi Whitman of Wellfleet, Mass., dated Oct. 26, 1793, in which he writes:

"We have in the winter a number of private schools, by which the greater part of the young men are taught the art of navigation. Three persons from the two have received their education at college."

In regard to the food resources of Wellfleet he says: "The inhabitants do not raise grain sufficient for the two. The common method is to import it from the southern states. We have for grinding it into meal, five windmills and one tidemill."

In a footnote to this letter the author states: "This day completes nine years since I first saw this town." He gives a list of the births and

A NEW ENGLAND SCHOOL BOY'S LETTER

To Mr. Cornelius Ten Broeck
att Albany.

Stamford, the 13th Day of October, 1752.

Honored Fethar,

These fiew Lines comes to let you know that I am in a good State of Health and I hope this may find you also. I have found all the things in my trunk but I must have a pare of Schuse. And mama please to send me a Slate, and som pensals, and please to send me some smok befe, and for bringing my trunk 3/9, and for a pare of Schuse 9 shillings. You please to send me a pare of indin's Schuse. You please to send me som dride corn. My Duty to Father and Mother and Sister and to all frinds.

I am your Dutyfull Son, John Ten Broeck.

Father forgot to sene me my Schuse.

—*Child Life in Colonial Days.*

A NEW ENGLAND SCHOOL GIRL'S LETTER

Hon. Father:

I am again placed at school under the tuition of an amiable lady, so mild, so good, no one can help loving her; she treats all her scholars with such tenderness as would win the affection of the most savage brute. I learn Embroiderey and Geography at present, and wish your permission to learn Musick. . . . I have described one of the blessings of creation in Mrs. Rawson, and now I will describe Mrs. Lyman as the reverse; she is the worse woman I ever knew of or that I ever saw, nobody knows what I suffered from the treatment of that woman. E. S. B.

C. 1775 —*Child Life in Colonial Days.*

deaths in Wellfleet during those nine years. Out of the 145 deaths during this period, 25 were from consumption, 15 from accidents (10 of which were from drowning), 4 from smallpox, 7 from old age, 1 from scurvy, 6 from whooping cough, 9 from fevers, 41 from unknown causes. The life was evidently hard on babies and young children for forty-eight of the 145 deaths were of children under 1 year and nineteen were of children from 1 to 5 years.

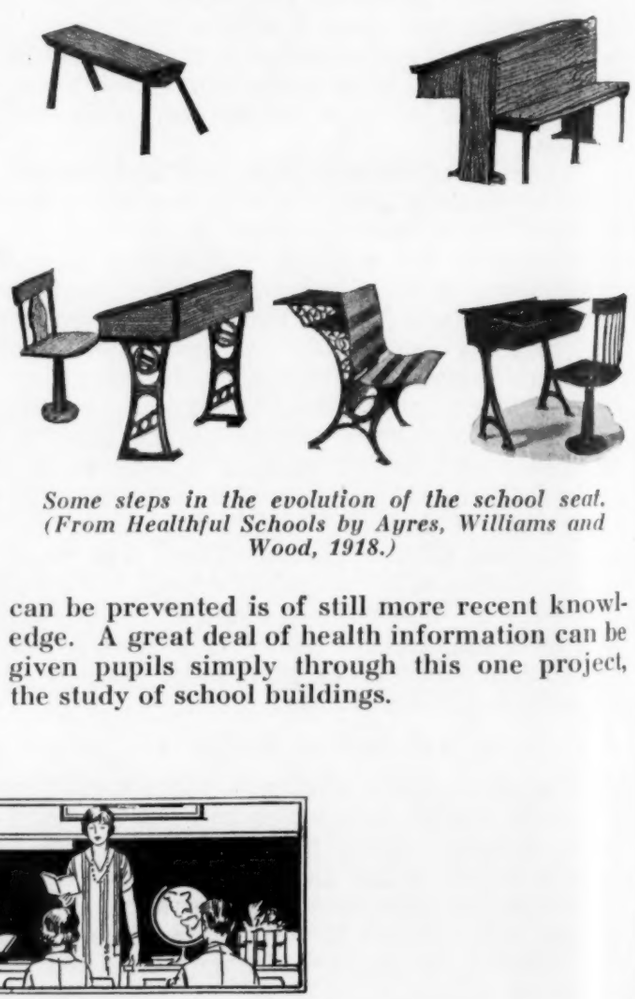
In Series 1, Vol. 3 (p. 230), of this collection, comments are made in regard to the health of the Indians. The Indian women, it is stated, have many children "except the plague fall amongst them, or other lesser sicknesses, and then having no means of recovery, they perish wonderfully. . . . Their only drink in all their extremities is a little boiled water."

Schools were opened for the boys of the "praying Indians," to fit them to be preachers among their own people. But of these it is related:

"Of this disease of the consumption, sundry of those Indian youths died, that were bred up to school among the English. The truth is, this disease is frequent among the Indians; and sundry die of it, that live not with the English. A hectic fever, issuing in a consumption, is a common and mortal disease among them. I know some have apprehended other causes of the mortality of these Indian scholars. Some have attributed it unto the great change upon their bodies, in respect of their diet, lodging, apparel, studies; so much different from what they were inured to among their own countrymen.

"These awful providences of God, in frustrating the hopeful expectations concerning the learned Indian youth, who were designed to be for teachers unto their countrymen . . . caused great thoughts of heart unto the well willers and promoters thereof. Some conceived, God was not pleased to make use of any of the Indians to preach the gospel. . . . Others thought that this honour of their instruction and conversion shall be continued with Englishmen. Others were of opinion that Satan, the great enemy, and opposer of men's salvation . . . did use all his stratagems and endeavors. . . . But others . . . that there was nothing more in these providences and remoras, than did usually attend and accompany all good designs."

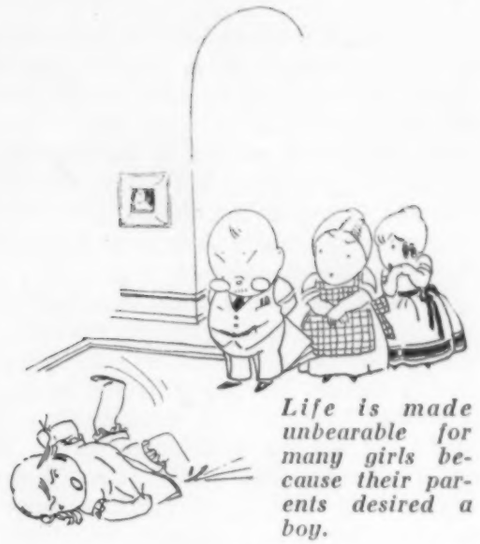
It appears that then, as now, a failure to conserve the lives and health of children was a waste of educational effort. Less was said, less was known, about health conservation in those days than is known and said today. The causes of diseases and how diseases are spread are comparatively recent knowledge; how diseases can be prevented is of still more recent knowledge. A great deal of health information can be given pupils simply through this one project, the study of school buildings.



Some steps in the evolution of the school seat. (From Healthful Schools by Ayres, Williams and Wood, 1918.)

The Unloved Child

By Walter Béran Wolfe



Life is made unbearable for many girls because their parents desired a boy.

THE position of a child in our civilization is precarious, from the very fact that he is small and weak and incapable of living an independent existence. His interpretation of the world about him may, even with the best efforts of his parents and the best of surroundings, be an erroneous one. A variety of causes tends to give the child the feeling that he is a stranger in an enemy country. If adults laugh at him, mock his awkwardness, make merry at his weakness, the situation becomes much aggravated.

This is precisely what happens in the case of the unloved or unwanted child. Into this class fall those children whose parents disagree but who are disinclined to seek relief from their situation in divorce because of the presence of the child. Into this class also fit that great number of illegitimate children whom our society pushes from pillar to post, whom our medieval laws do not recognize as human beings with the same rights and the same necessity for love and care that the child of a legitimate marriage commands. Into this class fall that large number of girls whose position in life is made nearly unbearable because their vain parents desired a boy. Into this class fit also that great number of children who are considered by their parents an additional burden and a financial drain, as well as children in homes in which a selfish motive in marriage prevails, the sole motive of pleasure, and in which the presence of a child is a burdensome responsibility. So also may be classified those children whose mothers see in their existence an excuse for evading, in the future, their marital duties; only children, with whose birth the mother believes she has justified her existence.

He goes through life scowling, suspicious, surly.

There are a great many people to whom the difficulties of growing up are not made any the easier because their environment from the very beginning is against them. It is the function of the mother to initiate her child into the fellowship of man, as well as to give him courage and self-confidence sufficient for the independent solution of the problems of life.

Now, obviously, a mother whose child is unwanted, whose child is an excuse or an alibi for her own neurosis, whose child because it is ugly or crippled does not satisfy her vanity or whose child by the accident of fate is a girl instead of a boy, is hardly prepared to play a satisfactory rôle in this initiation.

What happens to the child is that he gets the early impression that he is a stranger in an enemy country, that every one is against him, that no one wishes to take the time or the trouble to help him become adjusted to the difficulties of life; this impression is never dispelled. What results? All his movements are directed toward overcoming the enemy. It is not surprising that such unloved children avail themselves of weapons called immoral. The unloved child has no social feeling. For him existence represents a world of enemies.

The child soon gets the impression that every one is against him.

Surrounded by an indifferent mother, a brutal father, strangers who do not care, the unloved child strives to overcome these individuals by whatever means he can find. Every contact with the outer world is an encounter. Never having experienced a friend, the unloved child has not learned the value of a friendly handshake or of a smile. He goes through life scowling, suspicious, surly.

Since the unloved child has never experienced a helping hand, he expects no friendship from the outer world. It is not surprising that in his battle for recognition he makes use of criminal methods of dominating his environment by tricks and treachery. The spoiled child's best instruments for effecting a quick superiority over his environment are lying, stealing, treachery, deceit, disloyalty. The nervous child is in the same position as the driver of a sputtering Ford in a race with a Rolls Royce. He cannot think of a better way of coming out victor at the finish than by cutting across the race course and stealing a lap on his competitor.

Life in this world demands the pooling of efforts, community of interests and, above all, that large feeling of the brotherhood of man inadequately called the social feeling. Truth, honesty, friendliness, fair play, the arts and the sciences can exist only when the social feeling is developed. In the case of the unloved child, no feeling for the rights of others, no feeling of fair play, can develop. A man who puts his foot into a rattlesnake's nest does not think of fair play to the rattlesnake. A man who is threatened by a mad dog does not consider the sporting instinct. The unloved child is in a similar situation.

His Youthful Paradise Lost

Often the child's parents have actually done nothing that, from a commonsense point of view, might be interpreted as an unfriendly act. It is not actually what happens but what the child thinks has happened that counts. A child who is actually surrounded by all the love in the world—that is, a pampered child—sooner or later discovers that his mother can no longer act for him, think for him and care for him to the same degree that she was willing to do when he was smaller, with the result that he, too, believes that he has lost his paradise, and, like a child who has grown up without love, becomes a spy in an enemy country.

Such a child has not been brutally treated, yet his attitude toward life is much the same as that of a youngster who has been beaten and whipped, scolded and nagged, from his earliest days. The old Roman philosopher Seneca said, "Not what happens but what we think happens is important." Nowhere is this idea so important as in the education of children.

When the unloved child enters the school, his preschool experiences color his attitude toward the community of the school. The school is a little life. It demands the subordination of the individual to the community. For this the unloved child, just as the pampered child, is unprepared. He is a disrupter of the quiet of the schoolroom; he is cruel and bullying toward other children. A hated girl is suspicious of every boy, or she is a tomboy and seeks to identify herself solely with the boys.

As with the pampered child, the best place to begin a treatment the purpose of which is to bring the youngster back into a good relationship with society is the home. But parents in the home are inaccessible, and possibly under our civilization the school offers the best opportunity for beginning the initiation into the fellowship of man that is so essential to the life of every child.

Signs Shown by Unloved Children

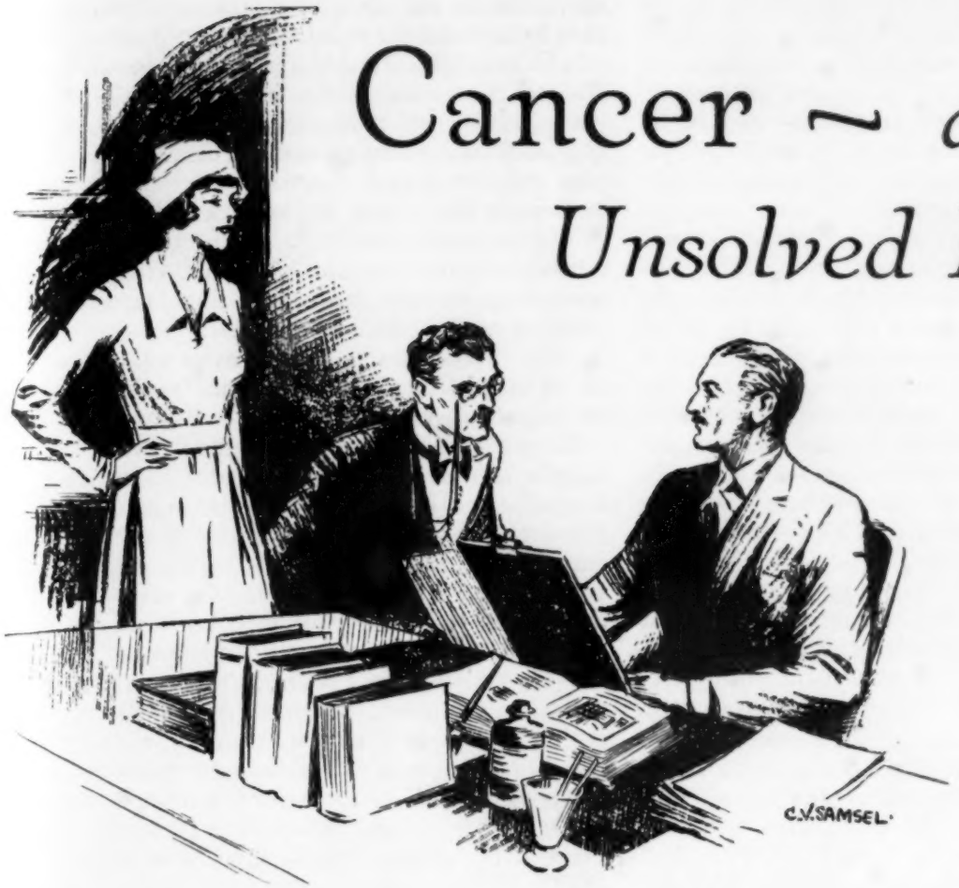
Teachers must be trained to recognize the early signs characteristic of the unloved child. These are, in the main, lying, stealing, cruelty to animals, a general lack of consideration, the inability to join in games and communal exercises, resistance to teachers, impertinence, stubbornness, and often the affectation of stupidity. If the teacher recognizes these symptoms of a nervous character and begins treatment in the schoolroom that will help to bring the child back into a more favorable position in society, the bad influences of the home may be obviated.

But the best way of all lies in the institution of child guidance clinics in every public and private school, in which teacher, parent, pupil and psychiatrist can join hands in the socializing task. In such a clinic, the teacher would bring the child to the psychiatrist, a diagnosis would be made and treatment outlined, both in the classroom and in the home; and through the medium of the parent-teacher association and an organized psychiatric social service, which would help to link the school, the home and the psychiatrist, the prevention of unfortunate results could be effected.

Today millions and millions of dollars are spent in combating crime, prostitution, the divorce evil—all of which are the inevitable results of a bad preparation for life. If a portion of this money went into the work of prevention through the institution of psychiatric child guidance clinics in every school, plus the education of the parents, the papers would not be so full of scandal and suicide, jails would not be so full of thugs and prostitutes, courts not so full of divorce cases, nor would homes be so pervaded by the poison of neurosis.

Cancer ~ *an Unsolved Problem*

By Shields Warren



Cancer tends to attack persons in their most productive age, the forties and fifties.

DISEASE and death at the present time constitute a shifting problem. Public health measures and advances in vaccination and sanitation have cut down diseases that kill young persons. As a result, the degenerative diseases of old age—those that are not spread from one person to another but are generated in and limited to oneself—have increased in relative importance.

One of the most important of these individual diseases is cancer. Cancer is fundamentally a disease of the cell. The cell, the unit of bodily structure, is a minute portion of living matter, consisting of a governing portion, the nucleus, the cell body, and a limiting membrane; the various tissues of the body are made up of groups of cells. Thus the skin is made up of layers of cells of the so-called epithelial type. The mouth, esophagus, stomach and intestines are also lined by cells of the epithelial type.

Two Types of Body Cells

The epithelial cells within the body usually have a function added to that of protection in that they secrete some special substance necessary in the bodily economy, such as the digestive juices, the saliva and the bile. One of the characteristics of the epithelial cell is that it is in contact on one side with its supporting tissue and on the other with the outer world, though the route may be long and devious. Thus the liver cell through the bile passages, the larger bile ducts, then the common bile duct and finally the intestine makes its contact with the outer world.

In addition to the cells making up the epithelial tissues, there are the cells that make up the supporting structure of the body, the so-called connective tissue, the blood vessels, the muscles, and the cartilage and bone of the skeleton. If we once get this conception of the cellular structure of the body and of the fact that the organs are made up of groups of similar cells, the behavior of cancer becomes easier to understand.

Sarcoma and Carcinoma

The term cancer, as commonly used, is applied to all malignant tumors. However, when spoken of by physicians, the word cancer is restricted to malignant tumors derived from the epithelial cells, the so-called carcinomas; while those cancers derived from the supporting tissues are called sarcomas. Sarcoma is more common in young and carcinoma in older people. Nine tenths of the cases of cancer, using the term in the broad sense of malignant tumors, are carcinomas. Moreover, cancer tends to attack individuals at their most productive age, in the forties and fifties.

This characteristic of attacking older age groups explains in part why cancer is appar-

ently increasing. More persons are living to the cancer age than ever before because they have been saved from the epidemic diseases of childhood and of early life. The reason that some New England towns have what appears to be an abnormally high rate is because many of the young people have gone to the city and only the older generation is left behind.

The fundamental property of the cancer cell is unrestrained and lawless growth. Whereas normal cells of the body are subjected to controlling influences, those of a cancer grow without any check. A tumor may be defined as a mass of cells that arises from preexisting cells in the body. While the individual cells of this mass may closely resemble normal cells of the body and at times be virtually indistinguishable from them, nevertheless the structure of the mass that they make up is not like that of any of the organs of the body. These cell masses serve no useful purpose although they grow at the expense of the body, utilizing nutriment needed for the normal activities of life.

The unlimited power of growth of tumors is strikingly brought out in many cases; thus, it is common in malignant disease to have a tumor growing to a large size, while the person bearing that tumor is extremely emaciated and steadily losing weight. In the same way the benign tumor, such as the relatively common fibroid of the uterus, grows steadily without regard to whether the person in whom it is located is gaining or losing weight.

Still another characteristic of the tumor cell is its tendency to revert to the more simple or embryonic type in which its structure and parts do not attain the high degree of specialization that they frequently show in the normal adult cell.

Benign and Malignant Tumors

Tumors are divided according to their behavior into two groups. The first of these is the benign tumor, which remains local and the cells of which are well differentiated and closely resemble normal adult cells. Benign tumors are comparatively common. The so-called fibroid of the uterus made up of smooth muscle cells and the adenoma, or glandlike tumor of the breast, are examples. However, though a tumor so far as its structure is concerned may be benign, it may through its location cause death; the majority of brain tumors, which usually result fatally, are benign tumors so far as their structure goes, but owing to their inaccessibility and the great compression of the brain resulting from the presence of the tumor within the unyielding skull, they cause death.

In contrast to the benign tumors, the malignant tumors invade and infiltrate the surrounding tissues; thus often from the central growth there may be prolonged irregular extensions popularly known as the roots of the cancer. These are simply portions of the growth that have found a relatively easy pathway along which to grow. In addition to the local destruction and invasion of the body tissues, malignant tumors can be transplanted by the blood or lymph flow to other portions of the body where they take root and establish new tumors similar to the parent tumor from which they came.

The surgeon recognizes this great power of a cancer to invade and extend through the surrounding tissues and for that reason when dealing with a malignant growth, even though it may appear small, he removes a large amount of surrounding tissue in order to be sure that he is getting rid of all the growth.

Tumors, both benign and malignant, have an ample blood supply as a rule. They are not supplied with nerves, and this is one of the reasons that pain rarely appears in early cancers. The relation of the tumor to its blood supply explains many of the features that appear in the course of development of a cancer. Only so long as all of the parts of the cancer receive an ample blood supply can the cells remain alive. Frequently growth of tumor cells takes place more rapidly than that of the blood vessels. The cells relatively distant from the blood do not receive sufficient nutrition to keep alive. As a result of death of such groups of cells, sloughing of the dead tissue results.

How Cancer Eats

The familiar eating away that frequently characterizes malignant tumors is due to this type of necrosis, or death of cells. The foul odors frequently so distressing and so commonly associated with advanced cancer are due not to the tumor itself but to the action of bacteria living on the dead tissue.

The ultimate key to the cancer problem rests in the cause of the disease. This is tremendously complicated, but some day scientists should be able to find their way clear to an understanding of it. One of the most important avenues of approach is a complete understanding of the normal activity of the normal cell. Certain definite factors control the growth of cells. One of these is the condition of the outer portion of the cell, the cell membrane. Thus, if an unfertilized frog egg is treated by a solution of dilute salts or alkalies, certain changes take place in the cell membrane and a tadpole develops from it.

There are certain familiar examples of this action of an external stimulus in producing growth. Every one has seen the oak galls on the surface of oak leaves. These are in a sense tumors of the oak tree in that they are local overgrowths of tissue that serve no useful purpose. They are produced by the bite of an insect and are due to a definite chemical effect on the cells of the leaf.

Great efforts are being made all over the world to discover the cause and cure of cancer. There are a number of agencies established particularly for this work, such as the Crocker Fund at Columbia University, the Harvard Cancer Commission, the Imperial Cancer Research Fund of Great Britain, the various cancer centers of France, Germany and other European countries.

Though a number of these institutions exist, their equipment and their endowments are inadequate for the prompt solution of the problem. The problem of the cause and cure of cancer, while far from hopeless, is easily the most complex that faces those working for the health and well-being of humanity. The lines of research that seem most apt to throw light on the problem are experiments tending to elucidate the fundamental activities of the cell; the study of the so-called transplantable tumors in animals, malignant tumors that can be inoculated from one animal into another; and the study of the behavior of normal and tumor cells grown outside the body.

Certain theories as to the cause of cancer have been accorded fairly general acceptance. The mixed tumors of early life, tumors that tend to produce the cells of an organ or group of organs, apparently arise from groups of cells which in the course of the development of the embryo became separated from their proper location and were carried elsewhere. These abnormal "embryonic rests," as they were called by Cohnheim, are without doubt the cause of most of the mixed tumors found in childhood and infancy. They are often associated with gross congenital defects, such as harelip, cleft palate and imperforate anus. The large deeply pigmented moles occasionally seen are minor examples of this type of tumor, being produced by cells that have been separated from their normal locality. Occasionally from these pigmented moles a malignant tumor of one of the most rapidly fatal types develops.

No Single Cause or Cure

However, far more important than these mixed tumors in early life is cancer that occurs usually in adults. A quarter of a century ago it was hoped that some single cancer parasite might be found and that one cause and one cure for the disease would be discovered. At the same time a great deal of stress was laid on heredity and it was believed that a tendency to the development of tumors was transmitted generation after generation.

Careful study of statistics and follow-up of case after case of cancer proved these ideas erroneous. Although under laboratory conditions elaborate experimentation has shown the hereditary transmission of a tendency to tumor in mice, there is no evidence that these results are applicable to human beings, living under greatly varied conditions and mating through mutual attraction rather than by the carefully laid plans of a laboratory experimenter. Life insurance companies, notoriously careful of their funds, do not discriminate against a policyholder even though both his parents died of cancer.

The most generally accepted theory of the origin of cancer at the present time is the chronic irritation theory. This assumes that chronic irritation arising from many causes does not produce cancer in itself but produces certain changes in the body tissues that favor the development of cancer. Thus chronic ulcers may persist for years and never develop any evidence of cancer. Other ulcers may after a certain length of time show unmistakable evidence of malignant change.

Although all types of chronic irritation do not go on to cancer, many cases of cancer may be traced back to long standing chronic irritation.

Among the known predisposing causes of cancer there are certain occupations; chemical workers engaged in the manufacture of coal tar or aniline products are particularly apt to develop cancer. One of the examples traditionally given is the cancer of the scrotum said to be relatively common in chimney-sweeps because of the continued action of the soot on a relatively delicate skin.

Martyrs to X-Ray Knowledge

The pioneer workers in x-ray tragically provided the world with still another example of chronic irritation in predisposing to cancer. Before much was known about the x-ray and when its value as an aid in the diagnosis of many obscure conditions and particularly in the handling of fractures was evident, those devoting themselves to this work had no idea of the dangers they were running; therefore they took no precautions to protect themselves from the action of the rays. Repeated exposure to the action of the rays resulted in the production of the so-called x-ray burns, deep, painful, ulcerated areas usually on the hand, which almost invariably progressed to cancer and usually led to amputation after amputation in

HOPE IN CANCER FIGHT

The hope of progress in the struggle rests on three measures:

1. **Ample facilities for research into the cause of the disease and for discovery of new methods of treatment.**
2. **Education of every one to bring suggestive lesions to a qualified physician.**
3. **Provision for treatment of both early and advanced cases.**

a futile attempt to stay the course of the disease. One of the thrilling chapters of medical history is presented by these men who continued their labors, although in intense pain and realizing they were facing slow death. Fortunately, through the experiments of these pioneers, the necessary precautions have been learned and x-ray work at the present time is relatively safe.

Certain peculiar practices give rise to cancer. Members of a certain tribe of Kashmiri, living at a relatively high altitude, carry a charcoal stove on their abdomen beneath their clothing. This stove frequently causes burns of the abdominal wall. Cancer of the skin in this region is common among this tribe and is virtually unknown among closely related tribes living at lower altitudes.

Will Mouth Cancer Increase among Women?

Cancer of the mouth parts and throat is more common in smokers than in nonsmokers. It will be interesting to see whether there is a general increase in cancer of the mouth among women since their taking up this practice.

Among other predisposing causes of cancer are certain lesions of some chronic disease, such as syphilitic lesions of the mucous membranes. A form of skin tuberculosis, lupus, is peculiarly liable to be followed by cancer of the skin in the same locality. In certain parts of Africa, particularly Egypt and the Transvaal, there are parasitic worms called *Bilharzia* which tend to localize in blood vessels of the bladder and discharge the eggs into the bladder. In many instances malignant growths of the bladder have followed prolonged *Bilharzia* infection.

To leave the human race, one of the most striking examples is found in the *Spiroptera neoplastica.* This is a parasitic worm that attacks rats and is transmitted by infected cockroaches. Certain types of cancer, particularly of the stomach, are caused in rats by the prolonged presence of this parasite. At one time there was a wave of publicity based on this discovery that blamed cockroaches as a cause of cancer.

Surgery and Radiant Energy Are Weapons

Various weapons exist to combat this disease. Remedies taken by mouth, usually of secret or complex formula, had their day in the Middle Ages and have been thoroughly discredited. Arsenical pastes used as cauteries were in vogue before the days of Christ and are no more efficacious today than they were then. Quacks are as active now as ever, unfortunately, and their dangerous and dilatory methods of treatment form an added risk for the cancer sufferer.

The two lines of attack that have yielded satisfactory results are surgery and radiant energy in the form of either radium or x-ray. These weapons are fairly successful provided they can be used before the tumor has extended too far and disseminated itself to different parts of the body. To these should perhaps be added chemical action, as the colloidal lead of Blair Bell yields slight hope of promise. Early diagnosis and early treatment are most valuable. Some tumors are so malignant from the start that no matter how soon the lesions (diseased tissues) are detected and treated there is no hope, but these are greatly in the minority.

A Peep at Next Month's Schedule

MENTAL HAZARDS OF MIDDLE LIFE
Clifford B. Farr, M.D.

CHRISTMAS SHOPPING FOR THE CHILD
Persis Leger

USES AND ABUSES OF PHYSICAL THERAPY
Richard Kovacs, M.D.

TATTOOING, ANCIENT AND MODERN
Marvin D. Shie, M.D.

ORIENTAL AND OCCIDENTAL HEALTH POSTERS (in Color)
S. B. Blakely, M.D.

Scene at America's first preschool eye clinic, conducted at Hartley House in New York City by the National Committee for the Prevention of Blindness. Here the sight of children too young to read is tested by a new method, which makes a game of the examination for the child.

Testing the Sight of the Young Child

By Park Lewis

IT IS often a matter of great importance to determine the vision of children still too young to respond to any of the ordinary tests. The skilled ophthalmologist can, of course, by methods with which he is quite familiar, ascertain whether the eyes are so constructed that they will function normally and whether defects are present, but in the infant and in the child too young to know either the letters of the alphabet or the names of the symbols that are found on the test cards provided for illiterates there has been no method in accepted use that gives a discriminating knowledge of the degree of sight possessed by each eye.

Recently, under the direction of the National Committee for the Prevention of Blindness, satisfactory tests have been made on children from 3 to 5 years old by means of an original method.

The difficulty of examining the sight of a young child in which cooperative responses are required is great. This is enhanced if the test is made by a physician in the mysterious surroundings of his office. The sensitive little person to be examined has spent his entire life almost wholly in the companionship of women, and the big man who looks him in the eye so penetratingly may have he knows not what sinister designs against him.

The child has perhaps been terrified recently by having a huge finger forced down his throat in a search for adenoids. The presence of a man is bad enough, but the word "doctor" is associated in his immature mind with all the horrors of a personal attack; no matter how kindly may be the approach, memory recalls a similar gentle camouflage under which the whole horrible battery of attack was concealed. So when he is invited pleasantly to "look up at the nice doctor," so far from doing so he seeks the assured protection of his mother or nurse and buries his head in her dress.

Then must follow a campaign of pacification and reassurance. Let there be the least semblance of force, indeed let there be veiled

impatience, and the day is lost. Meanwhile the hour for the appointment of the man of affairs is slipping by and emergency and accident cases are crowding the waiting room.

Happily a solution of this difficulty has been discovered.

A woman is less alarming to the baby, as she forms a part of his usual entourage. In the nursery, in the home or in the preschool class she can break through his defense. She has his confidence. What is done in the nature of investigation must take the form of play. The method must be so simple that there is no tax on the child's intelligence and must be sufficiently accurate to enable the observer to draw reasonably exact conclusions. It has been found that a card on which are printed lines of symbols or letters is confusing. The test object should consist of one single thing.

Infant's Eyes Follow Candle

In the infant 5 or 6 months old the presence or absence of sight can be determined by means of a lighted candle. If it is moved before the eyes they will follow it. If one is covered the other will continue to do so and the process may then be reversed. The fact that the light is perceived is shown by the contraction of the pupil when the flame is uncovered at a distance of 12 or 14 inches from the eye.

In children of 3 or 4 years the task is more difficult. The single object that has been chosen for the test is the letter E commonly employed on the visual charts. These letters are so formed that the square of which it is constructed is five times the width of each part of the letter. At a specified distance the ability to distinguish a letter of a certain size gives the accepted measure of the range of sight and may be so recorded.

The printed chart contains one large letter on the top, with two on the second line and with three, four, five and more on succeeding lines as space permits. Each letter is so placed on the chart that the open side is turned in any one of four directions. It may be up or down, backward or forward.

The test consists in having the child or older person who is examined name the direction toward which the open side turns, smaller letters being used successively, at a stated distance until if in the final row the position of each letter is correctly indicated the eyes being tested separately, normal sight is recorded. If the smallest of the symbols that can be seen is yet not the smallest that should be seen, the record is made in the form of a fraction, the figure above the line signifying the distance at which the test is made and that below the line the smallest letter actually seen. If then the lowest letters are correctly indicated the record would read $\frac{20}{XX}$ or $\frac{20}{20}$ or normal. If only the largest letter, the record would read $\frac{20}{CC}$ or $\frac{20}{200}$; if one that should be seen at fifty feet, $\frac{20}{L}$ or $\frac{20}{50}$, etc., so that in this way a permanent visual record may be maintained.

It was found by Miss Eleanor P. Brown, Mrs. Jessie Ross Royer and their associates making these observations for the committee that simple as these tests would seem to be, they are not so psychologically. The untrained infantile mind has not learned to focus itself on the object seen. It has not learned to discriminate differentially and it has not learned self-expression. Apperception comes rapidly but it requires a degree of preliminary training.

The first requisite is the fixing of attention. The wandering of the mind of the child is evidenced in the uncertainty of the movements of its eyes. They turn momentarily from one object to another without any fixity of purpose. If the physician stands by the little one, the child's eyes after looking for an instant toward the test chart seek inquiringly the eyes of the examiner, and it is evident that the interest centers in him rather than in the distant and unexciting card with its black symbols on it.

Attention must be first aroused by interest. Before interest can be excited confidence must be established and confidence comes from acquaintance and friendliness. A little time is thus well spent if the investigator is a stranger, in gaining the friendship of this little adventurer in a new world.

Making a Game of It

The dull serious work must then be vitalized. It becomes a game. The big "E" is a funny animal with three legs. Now he lies on his back, now he stands on his three legs, now his legs point this way and now that. But how shall this mute, timid little creature play so hard a game? It is too much to expect a mind diverted by outside interests to exclude these and to engage in the complicated mental processes of watching, thinking, discriminating and vocalizing all at once. So these clever women developed a system of signaling, which is much easier and which leads the little observer to forget his self-consciousness. With a great sweep of the arm the direction is indicated in which this amusing animal is turning his legs up or to the right with the right arm, down or to the left with the left.

So with much laughter and glee one eye is covered and smaller symbols are employed until at last the smallest has been correctly seen and the eyes are recorded as normal. Or if, as sometimes happens, one eye is found to have an imperfection of sight and only one half or one tenth of the normal vision is found to be present then this is an urgent case for the intervention of the skilled ophthalmologist. This is doubly true if one eye has a slight

Jennie shows which way the legs of the animal point. The examiner is using the illiterate E chart in testing the vision.

tendency to turn inward when both should appear to be parallel. There is every probability that one or both of the eyes have a common congenital malformation which is the forerunner of squint or strabismus and which, if not corrected by suitable glasses, may result in a permanent lowering of vision.

If the eyeballs are too flat in their contour or if they are sufficiently irregular in shape to cause strain but to give no evidence of it when they are focused, the effort required is increased. In order that there may be easy and single binocular vision (that is, that the two eyes may work easily and comfortably together), the eyes must be directed equally toward an object.

Should one eye turn in while the other is straight, two images are formed in the brain and the child sees double. This is so disagreeable that an effort is made to overcome it by closing the consciousness to the existence of one of them. The child shuts the eye of his mind on one side. In the developing structures the habit of visual control has not yet become absolutely fixed as it will be in adult life. To avoid this discomfort the child learns gradually to ignore the image produced by the squinting eye and thereby to suppress it. In course of time this suppression becomes established and the eye that would not see finally finds that it cannot see. There then exists dulness of sight from nonuse. But after the eyes have once turned and the sight begins to be dulled the difficulty of a complete restoration increases progressively with each added year.

By wearing suitable glasses the eye is mechanically put in position to function normally at a sufficiently early age. The visual centers undergo a retraining and the sight may be gradually restored.

If this early opportunity is neglected, as is sometimes unwisely advised, until the child is 10 or 12 years old, the possibility of a return to normally clear sight in the defective eye is often lost beyond hope of recovery. Therefore, if the sight in such eyes is to be preserved, the necessity of the early recognition of ocular defects and their prompt correction is of primary importance.

It is not imperative that the amount of visual acuity of the child be ascertained in order that the proper correction may be applied. It is most desirable, however. The difficulties of making such tests in the physician's office have been indicated. Preliminary tests in the home or in the preschool nursery would greatly facilitate the oculist's methods of procedure. His own valuable time would be conserved by having a woman assistant trained in the management of these young patients.

The symbol letters cut from the card and used singly in the hands of a tactful, judicious woman with a knowledge of child psychology would not only enable her to bring to the oculist a fairly exact statement of the visual acuity of each eye of the child but would greatly aid in developing the child's mind by teaching him to govern his activities by the application of his own will, thereby attaining the control that is the object of all educational efforts.

A multitude of variations of the method outlined will readily suggest themselves to the thoughtful student. The figures may be actually those of animals. An elephant would serve admirably. Its thick legs would be equal in visibility to that of the largest test letter, its trunk to one of middle size, its tail to one still smaller and the eye to the least of all. Each of these could be put on movable pivots and would make a game so full of ludicrous possibilities as to engage the attention of the most abstracted child.

Wide World

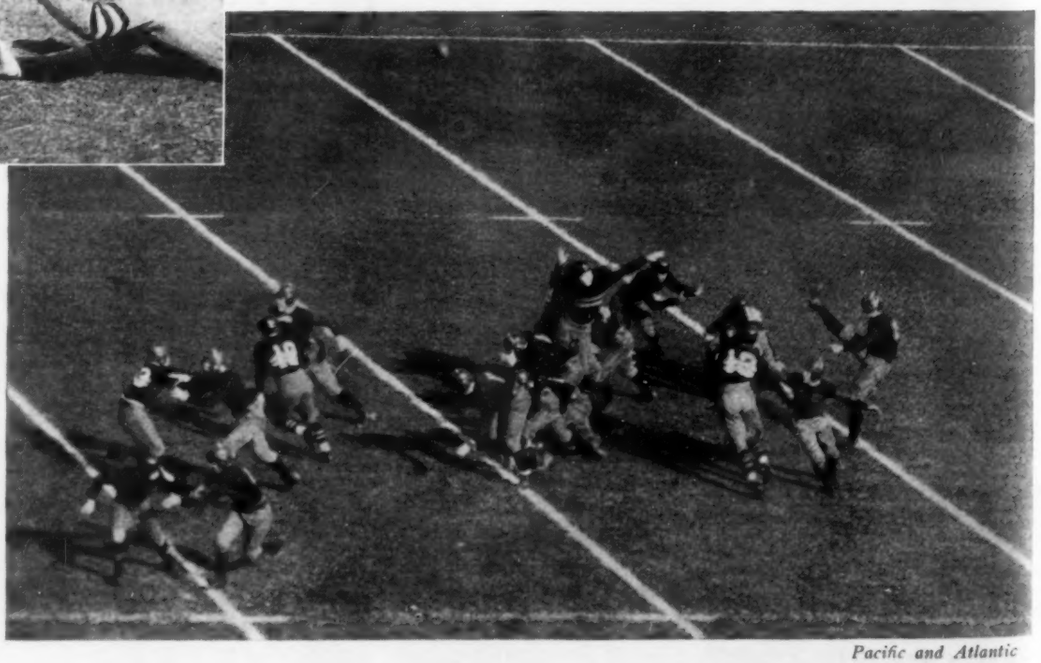
GRIDIRON HEROES

Wide World

Now at TOP *of* FORM

H. Armstrong Roberts

From early workouts, through grueling practice, up to championship games an ever-growing public follows its football heroes. By November the athletes are at the peak of condition both in individual development and in team play.



Pacific and Atlantic

Meet Doctor Sunshine

By Benjamin Harrow

"Sol est remordium maximum."—*Pliny.*

NOW that the importance of sunlight as a factor in the development and maintenance of health among communities is coming to be recognized, industrious historians are diving deep into their volumes to prove to us that the ancients knew as much as we do. We are told that the Megas and Aztecs of Mexico, the Israelites and the Egyptians recognized sunlight as a healing agent. It is not altogether clear, however, to what extent the therapeutic properties of the sun were confounded with its supposedly godlike qualities. As a luminary of exceptional size and brightness, the sun was naturally an object of worship. Its divine attributes were enhanced when rickety children and tuberculous patients were sometimes made well again by daily appeals.

The Greeks, it seems, did regard the sun as an occasional substitute for the doctor. In the island of Cos in the Greek Archipelago, where Hippocrates, the father of medicine, practiced, the citizens erected a health temple and dedicated it to Aesculapius, the god of sun, medicine and music.

Romans Had First Sun Parlors

Was it design, instinct or accident that led the Romans to build themselves sun parlors—sun parlors without windows? Neither the Kinder Klinik of the Vienna Hospital nor Rollier's Institute in Switzerland can show any decided improvement over those Roman sun parlors.

The people of the middle ages and our forefathers of more recent times gave no serious attention to heliotherapy. During the last decade, Finsen in Copenhagen and Rollier in Switzerland have obtained such remarkable results in some diseases through the use of heliotherapy or its equivalent in many respects, ultraviolet light, that the subject has forced itself on the attention of physicians. But even more dramatic and arresting in the results obtained has been the use of the sun's rays to cure rickets. This has led not only to a wider recognition of the therapeutic properties of the rays but to some of the most beautiful and fruitful researches in science in the past few years.

Newton made the pioneer observation that what is called white light consists of a mass of colors, the familiar spectrum obtained when light is passed through a prism. Later investigators learned that the various colors—the various rays of light—differ among themselves only in wavelength; that the visible spectrum is but a small fraction of the rays sent to us by the sun; that beyond the visible red is an infra-red region, and beyond the visible violet is an ultraviolet region.

Healthful Rays Are Invisible

Sent out into the ether of space, if there is an ether, are waves of the infra-red variety, constituting something like 85 per cent of the sun's output. These rays are invisible to us; yet Herschel, more than 100 years ago, placed a bulb of a thermometer outside the red region and demonstrated heat effects where to the naked eye there were no rays at all. Becoming progressively shorter in wavelength are the rays of the visible spectrum as we proceed from the red to the violet; these constitute about 14 per cent of the sun's output. Beyond the violet, with rays becoming shorter and shorter, is the ultraviolet region, constituting from 1 to 2 per cent of the total rays of the sun.

Ultraviolet rays are chemically very active. The visible portion of the spectrum can be completely shut off, and yet if a photographic plate is placed in the ultraviolet region it will become sensitized, which means that this part of the

spectrum has the power to decompose salts of silver. It is for this reason that these short wavelengths of light have been termed actinic. Therapeutically, these actinic rays are considered by far the most important of the sun's rays; and as various glowing substances—carbon, tungsten and the mercury arc lamps, for example—give off ultraviolet rays, the so-called artificial light treatment has been extensively introduced.

The ultraviolet rays can be photographed if a prism is used that does not absorb rays of short wavelength. A glass prism is unsuitable for this purpose, since it is practically opaque to the greater portion of the ultraviolet radiations. A quartz prism, however, is transparent to short wavelengths and is universally used.

Light Treatment at Finsen Institute

Actual experiments have shown that atmospheric air absorbs much of the ultraviolet radiation. Rollier's clinic is situated on one of Switzerland's mountain tops, and neither children nor animals suffering from rickets can be cured if they are exposed to the sun in a glass-enclosed sun parlor. The recent invention of a new fused quartz glass, on a large scale, makes it probable that in the near future sun parlors, sheltered from the elements but permeable to ultraviolet radiations, will become common, at least in hospitals, sanatoriums and even schools.

Significant also becomes a recent observation that exposure of the skin to ultraviolet radiations increases the bactericidal power of the blood. The power to overcome invading micro-organisms, the increased resistance of the body, gives a reasonable explanation of some of the sun's therapeutic properties.

The first modern institute for the treatment of certain diseases by means of light was established more than a decade ago by Niels Finsen in Copenhagen. For years his work remained unappreciated and even unnoticed. But after the publication of his work, *Chemischen Lichtstrahlen in der Medizin,* continental physicians gradually turned their attention to him. For in this work Finsen described how many cases of lupus vulgaris, or tuberculosis of the skin, could be cured by the action of concentrated sunlight on the affected parts.

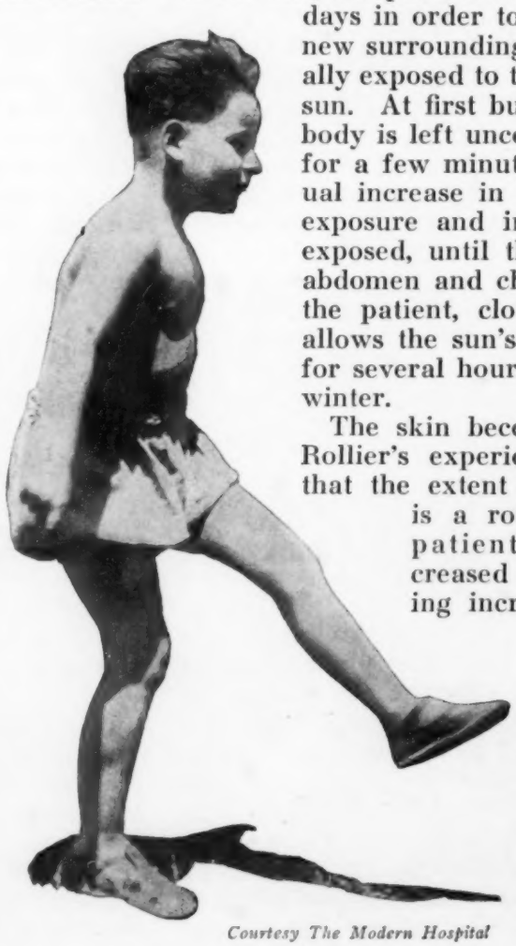
That it was the ultraviolet portion of the sun's spectrum that played the dominant rôle was shown to be probable when Finsen proved that identical results could be obtained by the use of artificial light that is rich in ultraviolet radiations. The Finsen light was obtained by forming an arc between two electrodes of carbon when a current of electricity was passed through them. The light from the arc was collected by quartz lenses and focused on a small area of the affected surface. The apparatus, but not the principle underlying it, has since been much improved.

When Finsen died, in 1904, his work had already become sufficiently recognized to induce the Danish government to found the Finsen Medical Light Institute, which, under the direction of Finsen's assistant, Dr. Axel Reyn, remains a center of attraction for medical pilgrims and skin-afflicted patients from all over the world.

An even more famous light institute is the one founded in 1903 by Dr. A. Rollier in Leysin in the Ormonts valley of the Swiss Alps. At that altitude the air is pure, dry and free from dust and few of the therapeutically potent rays of the sun are lost. In any large city the combination of low altitude, moisture, dust and smoke prevents 95 per cent of the potent rays from forcing their way down to sea level.

Progressive Exposure

Rollier's progressive method of treatment has been generally adopted. Before being exposed to the sun, the patient is put to bed for a few days in order to accustom him to his new surroundings. He is next gradually exposed to the air and then to the sun. At first but a small part of the body is left uncovered, and then only for a few minutes. There is a gradual increase in the extent of surface exposure and in the length of time exposed, until the legs, arms, thighs, abdomen and chest are all bare, and the patient, clothed in a loin-cloth, allows the sun's rays to play on him for several hours a day, summer and winter.



Courtesy The Modern Hospital

The skin becomes pigmented, and Rollier's experience has taught him that the extent of this pigmentation is a rough criterion of the patient's improvement, increased pigmentation implying increased resistance and therefore increased health. The patients who show little or no improvement either do not develop any pigmentation or merely freckle, which is not true pigmentation.

Patients at Dr. Rollier's clinic com-

prise both sexes and vary extensively in age. The sunbath proves most beneficial to sufferers from several forms of tuberculosis (particularly tuberculosis of the skin, bones, joints and glands), chronic ulcers, anemia and rickets. Striking results have been obtained in bone and joint tuberculosis; here statistics point to about 80 per cent cures, and "cure" in Rollier's vocabulary means more than the mere arrest of the disease, with the fixation of the afflicted joints; it means the full restoration of movement to the joints. X-ray pictures taken after the light treatment show convincingly how the bones have become recalcified.

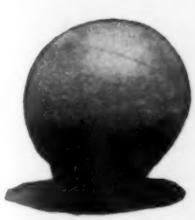
Rollier has gone one step beyond treatment, to prevention. Children with reduced powers of resistance brought on by various diseases, such as measles and whooping cough, who may develop tuberculosis, are boarded at the Rollier school. Here they continue their studies in the open for two hours every day, with clothes consisting of no more than loin-cloth, linen hat and shoes. They rest for two hours every day and fill in the remainder with nature study and Swedish drill.

Courtesy The Modern Hospital

These children are on friendly terms with Doctor Sunshine.

The possibilities of sunlight as a therapeutic agent have been most convincingly established in the disease known as rickets. In this connection fruitful work has been done by American physicians, such as Dr. Alfred Hess of New York and Dr. E. A. Park of New Haven, and American biochemists, such as Dr. E. V. McCollum of Johns Hopkins and Dr. H. Steenbock of Wisconsin.

Rickets, according to the late Sir William Osler, is "a disease of infants, characterized by impaired nutrition of the entire body and alterations in the growing bones." Perhaps no disease is commoner to infants living in the temperate zone; no sight is commoner than the bow-legged youngster. The soft bones indicate a lack of proper calcification; and this, in turn, denotes a lack of the proper utilization of the elements calcium and phosphorus, of which bones are largely composed.



One of the earliest remedies proposed for this disease was the administration of cod liver oil, a substance used for many years by inhabitants of Europe as a remedy for almost every ailment. However, the definite proof that cod liver oil is really a specific cure for rickets was not forthcoming until 1921, when Professor McCollum and his associates showed that the addition of the oil to the diet of rachitic rats actually induced a deposit of lime salts in the cartilage of these animals.

About the same time, Professors Howland and Park proved, by means of the x-ray, that the administration of the oil to rachitic children was followed by the deposition of lime salts in the cartilage and bones after a period of from fifteen to twenty-one days. Here, then, in addition to general bedside observation, was a definite test available to determine the therapeutic value of any reagent when applied to rickets; and this test—the deposition of lime salts in the cartilage and bones—has been used since.

The first clear indication that sunlight, or rather its active chemical portion, the ultraviolet rays, exerts a curative action in rickets in much the same way that cod liver oil or certain inorganic salts do was brought forward by the German physician Huldschinsky, in 1919. He had treated four children who had advanced rickets with the mercury vapor quartz lamp and found that at the end of four weeks it was possible to demonstrate, with the help of the x-ray, deposits of lime salts at the ends of the long bones of the extremities. After two months the healing seemed almost complete.

To Dr. Hess of New York belongs the credit of demonstrating that sunlight alone possesses the curative action exercised by the light of the

mercury lamp in the rickets of human beings. In that remarkably prolific year, 1921, Dr. Hess and his friendly rival, Dr. McCollum, showed that diets which regularly gave rise to rickets in rats, provided these animals were kept indoors or away from the sun, failed to produce the disease when the animals were kept outdoors and in the sunlight. That the rays responsible for the cure belong to the ultraviolet region of the spectrum became evident when children behind window glass were not protected from rickets.

Radiant Energy

That the addition of calcium or phosphorus to the diet of rachitic animals should cause an added deposition of these elements in the bones of the animals is something that need not tax the imagination to any great extent, but that cod liver oil and radiant energy should be able to accomplish this same thing is not so easy to grasp. One may suppose a source of calcium or phosphorus in cod liver oil, but not by the wildest stretch of the imagination can one imagine a source of these elements in the rays from the sun or in the rays from glowing metals. For want of a better theory, it is supposed that radiant energy and the factor in cod liver oil also responsible for the curative property have this in common: they supply something that makes the metabolism of the body more efficient; they cause the organism to operate with increased economy.

But the most amazing results of the effects of radiant energy are yet to be recorded.

Cod liver oil is a specific cure for rickets, yet linseed oil and cottonseed oil, containing many but not all of the chemical constituents of cod liver oil are of no value in this respect. When, however, linseed and cottonseed oils are first exposed to ultraviolet rays, they acquire distinct antirachitic value. So do such diverse foods as wheat flour, dry milk and various vegetables. An exhaustive chemical analysis of the constituents of these various substances led to the view that the compound particularly affected by these ultraviolet radiations was cholesterol.

Cholesterol is present to a greater or less extent in all cells, whether animal or vegetable, and though it has been familiar to clinician and chemist for many years its functions in the body have remained a matter of dispute and of mystery. Chemically pure cholesterol, Dr. Hess discovered, did not relieve the conditions of rats suffering from rickets, but when this same cholesterol was first exposed to ultraviolet radiations and then administered to the rats, the cure was prompt and complete.

This arresting result solved a problem but in a sense increased the mystery. Instead of having to deal with a mass of heterogeneous substances such as constitute cod liver oil, milk, flour or vegetables, the chemist and physician could now confine their attention to a well-defined compound, complex in structure but nevertheless a single entity (an individual), chemically speaking. However, the difficulty was to formulate an acceptable theory explaining the action of the rays on the cholesterol. A chemical analysis of the natural and the irradiated cholesterols failed to reveal any differences. This is hardly surprising, for it does not seem likely that electromagnetic vibrations—for such are ultraviolet radiations—add to or take away elements from a compound.

The more plausible theory is that the rays bring about a redistribution of the internal structure of the cholesterol molecule, a change that would not alter the mass of the molecule or the relative weights of its elements but that might well change the chemical nature of the substance. This theory is supported somewhat by the observation that the two varieties of cholesterol behave differently when subjected to spectroscopic examination.

Too Long Exposure Harmful

This research into one of the functions of cholesterol has led to an observation that has important clinical applications. Overirridiation of cholesterol makes the compound as valueless in the treatment of rickets as if it had not been irradiated at all; in fact overirradiation might conceivably do the patient harm by decreasing immunity and opening the way to invasion of the respiratory tract.

The practical application of these researches dealing with sun treatment is more immediately obvious than is the case in many pure research investigations; it is: "Meet Doctor Sunshine." To be out in the open whenever possible and as long as possible, is to find a remedy for many ills.

HYGEIA
THE HEALTH MAGAZINE
Published by the American Medical Association
535 North Dearborn Street, Chicago

Plain Facts about Health and Disease

HEALTH NEWS OF THE MONTH

Those Cigaret-Smoking Mothers

Late in September there was held in Chicago the annual convention of the American Association for Medical Physical Research. This is an organization of nondescript practitioners of healing, representing the outgrowth of a moribund, if not defunct, society developed by the late but not greatly lamented Albert Abrams, founder of the so-called electronic medicine.

Once upon a time, when these practitioners met in annual conclave, newspapers devoted columns to the vagarious notions uttered by the enthusiastic promoters who found places upon the program. Newspaper editors have fortunately become somewhat informed relative to the difference between scientific facts and fantastic opinions. When these societies meet today the press is largely silent relative to the pronouncements that are enthusiastically urged by these medical exploiters.

This year only a single communication apparently was able to find its way into general circulation. It was made by one Charles L. Barber of Lansing, Mich., who charged that 60 per cent of all babies born of cigaret-smoking mothers died before reaching the age of 2, primarily as a result of nicotine poisoning. This announcement is supported by evidence like that regularly used to convince the credulous that the moon is made of green, and not limburger, cheese. As a scientific statement, it partakes of the odor popularly credited to the second mentioned form of fromage.

Any one with a modicum of reason will realize that the eminent Herr Doktor Barber has no statistics to support his observations, that he has probably never performed a postmortem examination upon a baby born of a cigaret-smoking mother, and that he is, to speak bluntly, talking through his hat. Nevertheless, this statement, like many of those issued in former years by this congress of savants, was broadcast throughout the country by several press services and selected by a few editors, who should have known better, as the basis of interviews and generally expansive exploitation. The only purpose the item could possibly serve was to stimulate still further anticigaret fanatics and to make a Roman holiday for Barber.

Pellagra in the Flood Area

The great floods in the lower Mississippi valley, interfering with the food supply, have already begun to show effects in the form of disease. In 1924 there were 20,000 reported cases of pellagra and 1,020 deaths in the lower Mississippi valley. In 1927, according to an estimate made by officials of the U. S. Public Health Service, there will be from 45,000 to 50,000 cases and from 2,300 to 2,500 deaths.

Pellagra is apparently due to the lack of certain important substances in the diet. It marks its presence in a human being by the appearance of symptoms of indigestion and nervousness, discomfort or pain in the abdomen, burning sensations of the hands, feet or mouth, a reddened tongue and diarrhea. An eruption appears, which at first may be mistaken for sunburn, but the skin gradually becomes dirty brown, then rough and scaly, after which it cracks or peels. The eruption usually appears on the back of the hands and forearms and on the top of the feet.

The investigations made by Dr. Joseph Goldberger indicate that people who develop these symptoms have usually been living on a diet composed largely of cornmeal, salt pork and molasses. A substance that is usually present in milk, vegetables and fruits, and in larger amounts in lean beef, mutton, fish, the yolks of eggs and powdered yeast is not taken in by

these people. The signs of its absence are the symptoms that have been mentioned.

When such patients are given dried yeast in proper amounts, they are usually benefited, but if their diets are not properly corrected the disease will occur again. More and more it is becoming apparent that the only safety from disease lies in a diet that is well balanced and that contains proper amounts of the food factors essential to life and health, which are commonly called vitamins.

Lack of Sleep May End Fatally

In the University of Wisconsin medical school investigators have recently completed a series of studies that proved what many people have long thought to be the case; namely, that lack of sleep is likely to result in collapse, if not in death.

When animals were prevented from sleeping by the use of a rotating cage it was found on examination that the nerve cells of the body had decreased in the amount of certain fundamental substances and, indeed, had actually become degenerated. Before the animals collapsed the symptoms of a disturbed body were apparent in the form of fever, rapid pulse and a sudden slowing of the breathing rate.

In other words, there is an anatomic and functional change definitely associated with the thing commonly called a "nervous breakdown." The human body is a living machine with the power of recovery and repair after damage but it can only be pushed to certain limits. When these limits are exceeded changes occur that are not susceptible to recovery and the living being dies.

Persons who like to boast of their tremendous vitality are likely to tell of hours and hours that they have passed without rest or sleep. Investigations indicate that the impression of the person as to the period that he may have passed without sleep is not a scientifically accurate observation. Actually, such people take brief periods of rest or semiconsciousness which are not apparent to them but which give brief opportunity for recuperation of the cells.

High Cost of Hospital Service

Articles appearing in various publications throughout the country indicate increasing alarm on the part of the public and particularly on the part of social workers as to the increasing costs of medical care, particularly for patients in hospitals.

Apparently hospitals have been compelled to increase their average charges approximately 150 per cent during the last fifteen years, a figure somewhat in excess of the general increase in the cost of living. A great portion of this increase is represented by the cost of medical service, necessitated by the demand for the application of modern methods of diagnosis and treatment. Much of the increase is a reflection of the application to hospital employees of the regulations affecting labor generally, such as less work and more pay. A great deal seems to be due to the fact that persons of high middle class are being forced into hospitals for their care during illness, because of the fact that it is impossible to be sick comfortably or even safely in a kitchenette apartment. All sorts of surveys are being made by various funds and commissions to find out the conditions existing, with a view to finding some practical solution for what is becoming a pressing problem.

M. F.

SELLING SAFETY INSTEAD OF SPEED

SAFETY COUNCILS preach and teach, traffic policemen vociferate and courts impose fines, but the speed demon goes on dealing death and disfigurement.

The freedom of youth, the heaviness of traffic and bootleg liquor have all been charged with their share of the responsibility. Now comes a member of the advertising profession placing some of the blame for the speeding urge on automobile advertisers who continually play up the high speed qualifications of their cars.

"For the sake of humanity, please pipe down on speed," says Clarence Wagener in *Printer's Ink*.

"Speed is like fire," he continues, "it must be kept under control, not only for the individual's sake, but for the sake of society; and the more deadly the generator of speed, the more closely must that generator be supervised."

Motorists are spurred by the records of spectacular performance to go and do likewise. "We say 55 miles per hour. Owners say we understate it," reads an advertisement in a current magazine. Many an owner has run down a frightened school child as the price of his information. The very figures, 5,000 miles in less than 5,000 minutes, suggest thrills.

One car is said to excel in traffic sprints. A sprint to beat a red light may mean death to a bewildered pedestrian.

There is a direct challenge in another advertisement, which "assures you 72 and more miles per hour." What could encourage recklessness more than, "can be driven around turns at 50, 55 or 60 miles per hour"?

The year's death toll of the automobile in Cook County, Ill., up to October 10 was 724 persons. Many were school children; many were old men and women; many were wage earners who left destitute families.

These figures take no account of the hundreds of injured. Any one who has seen a member of his own family encased in a steel jacket, powerless to move for months on end, losing time from work, harassed by thoughts of hospital and doctor bills while others struggle to make both ends meet, to say nothing of the probability of being maimed for life, becomes forever after a careful motorist.

A Chicago judge recently took three young speeders from his court on a personally conducted tour of the accident ward of a children's hospital. Some of the broken little bodies had lain flat for as long as a year. Some would never play ball or swim again. It sobered the boys. They declared it would be many a day before they could bear to touch an automobile.

Advertising men's children are as likely to be run down as any others, Mr. Wagener declares.

"Aren't you thankful," he asks the motor car advertisers, "as I am daily, when you reach home in the evening and find that with the passing of another day your little 7 year old daughter is still sound in body and limb?

"The present menace of the automobile to human life is something about which you can well afford to become concerned. What boots it that the medical men and the sanitary engineers have increased and continue to increase the span of life, if we and our loved ones are running a greater and greater risk each year of being mowed down by an automobile at any moment? And we are running that risk, as statistics all too vividly tell."

It is a challenge to those who tax their ingenuity to sell speed. Let them try selling the safety of their product. L. S.

EDUCATING THE PUBLIC IN HEALTH

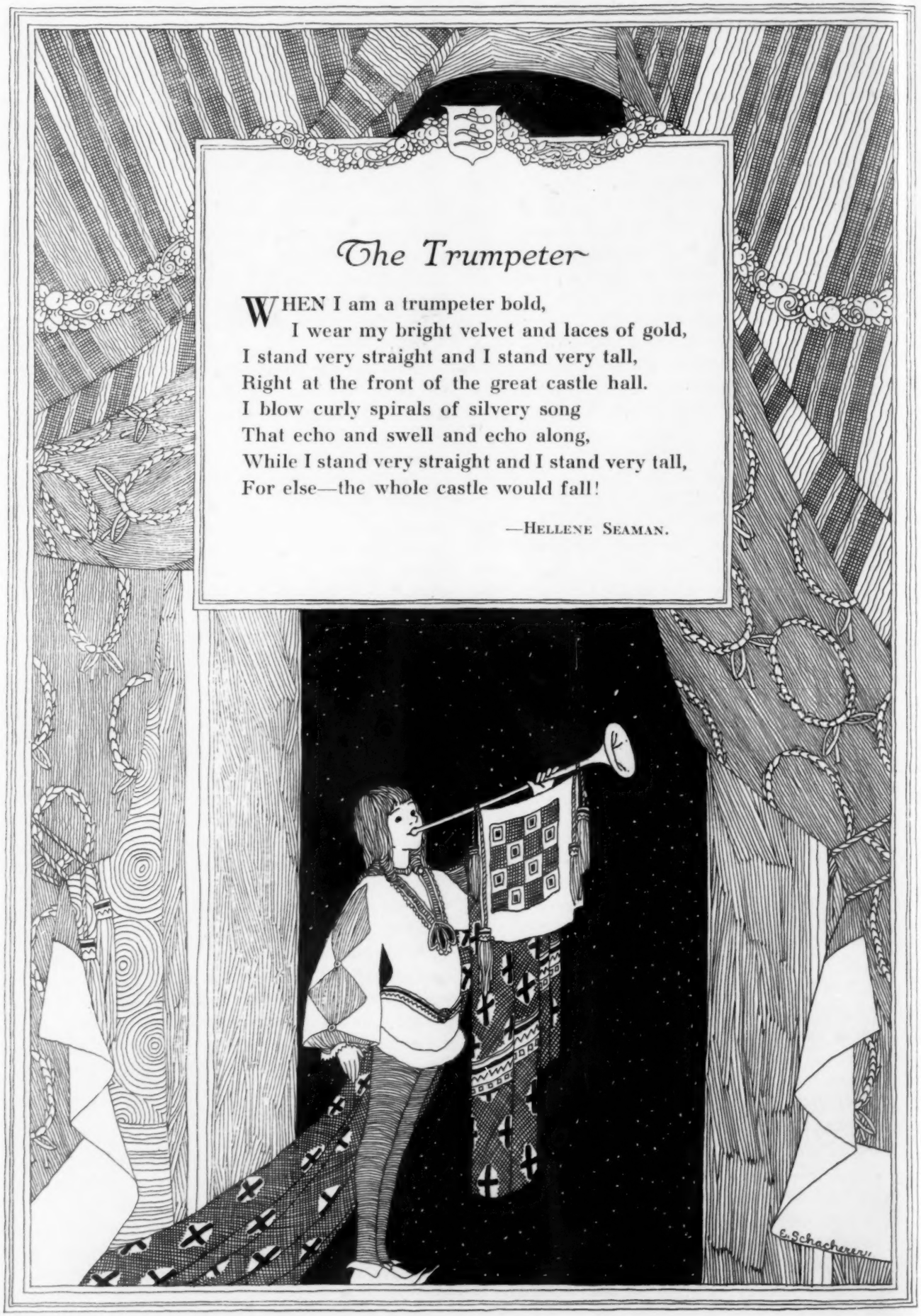
THE human being is much given to mob movements. The contagiousness of interest is best revealed by the utter disregard for proportion or balance that affects an entire community, including its philosophers and scientific men, in the presence of a world's series baseball game or a championship prize fight. Ten years ago, few persons were interested in health education. Today every newspaper has its health column, every publisher issues dozens of books for the public on health subjects and, in addition to HYGEIA, there are publications issued periodically.

In a previous editorial reference was made to the health columns appearing in the daily newspapers. One of these, full of vicious misinformation, is the product of the physculpractor McCoy. As was predicted in our discussions of the McCoy column, it has already begun to disappear from some of the newspapers whose editors misguidedly purchased it for their readers. In the meantime the McCoy headquarters have attempted to offer the column for nothing to various house organs of great corporations, and the editors of many of these organs have sent notes of appreciation to HYGEIA for warning them against the gift.

In the periodical field the outstanding accumulation of peculiar and unestablished notions in the field of health continues to be that bible of health cultists and health faddists known as "Physical Culture." Of late it has made overtures to the physicians of America seeking to cajole them into an endorsement of the physical culture and hygiene conception, hoping perhaps to use that endorsement as a means of selling itself to an unwary public. In its advertisements it continues to proffer Goldbergian devices for exercise, unsound dietary schemes and strange systems of education. In its reading pages it has always condemned the well-established use of antitoxin for diphtheria; it has fought scientific experimentation on animals; it has opposed all serums and vaccines; it has promulgated exercise and starvation for the treatment of almost everything that might afflict the human system. From a scientific medical point of view it is a hopeless agglomeration of nonsense and pish-posh.

Now comes the notice of a competitor for Mr. Bernarr Macfadden's major opus. It appears that McFerrin's Health Bulletin, previously discussed in an article on dietary fads in HYGEIA, is to become a monthly periodical to be called the *National Health Review*. Its editor proudly announces: "Dr. McFerrin will remain the editor but the scope of the magazine will be enlarged. Some of the foremost doctors, naturopaths, chiropractors and diet specialists will cooperate with Dr. McFerrin to give the magazine editorial appeal." The features promised for November are much the type of hokum that characterizes Macfadden's pages.

No doubt there will continue to be ignorant and imbecilic cranks and faddists to whom such literature may be purveyed. Until American children learn in home and in school the simple things about the construction and functioning of their bodies peculiar doctrines will continue to be foisted upon them and their parents. M. F.



The Trumpeter

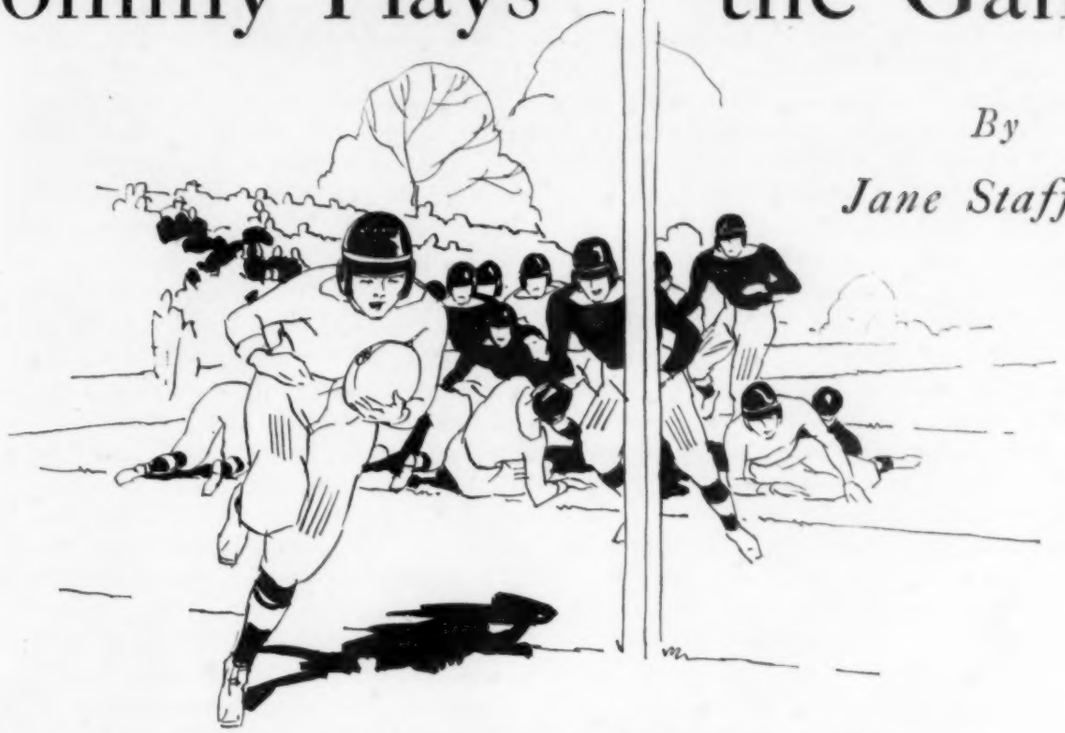
WHEN I am a trumpeter bold,
I wear my bright velvet and laces of gold,
I stand very straight and I stand very tall,
Right at the front of the great castle hall.
I blow curly spirals of silvery song
That echo and swell and echo along,
While I stand very straight and I stand very tall,
For else—the whole castle would fall!

—HELLENE SEAMAN.

Tommy Plays the Game

By

Jane Stafford



"The crowd held its breath while Bill, clutching the slippery oval to his side, sped across the goal line just as the whistle blew."

"PING, ping, ping, ping," chimed the clock in the parlor. "Ping, ping, ping, ping," it sounded ever so softly in the room above where Tommy lay in bed reading a book. The lamp by his bed made a white circle of light about Tommy's yellow head, his book, his snowy bed and the pile of school books on the table next to him. The rest of the room and of the house was dark and shadowy and still. "Ping, ping, ping, ping," the clock struck twelve times and then was silent. Tommy turned the last page.

"The crowd held its breath while Bill, clutching the slippery oval to his side, sped across the goal line just as the whistle blew. Then with a mighty roar the crowd burst forth in cheers and scrambled onto the field to greet the hero who had won the game and saved the day for Hillside School."

Tommy closed the book reluctantly.

"Gee, he must have felt great when he heard all that cheering and knew he'd won for his school," Tommy whispered to himself. "I'd like to do that. No chance, though," he added, and sticking out one thin leg regarded it ruefully. He pushed up his pajama sleeve and clenched his fist. His arm, too, was pitiably thin and the biceps failed to bulge in response to his efforts.

"Not much chance to make a football team when you're so little," he thought, unhappily. "They don't want any little runts on the team. Still, I can run pretty fast. Guess I'll go out to the field tomorrow anyway."

He laid the book on the floor and shivered. "Jiminy, it's cold in here. Glad I didn't open the window." He turned out the light and drew the covers up to his nose.

It seemed only a minute later that he heard his mother calling, "Tommy, time to get up!"

Tommy yawned and turned over sleepily. He wished that he didn't have to get up so early. He was so tired. The sun was sending his beams around the edges of the shades and right onto Tommy's face. The bed felt soft and warm and Tommy hated to leave it. That was a great story he'd read last night. He fell to dreaming about it.

"Tommy!" His mother called again, more sharply this time. "If you don't get right up you will be late to school."

"All right," Tommy called back and after one more prodigious yawn and stretch, he slid out

of bed and into his clothes. When he walked into the breakfast room, a few minutes later, his mother looked at him closely and said, "Tommy, were you sitting up late reading again last night?"

"Oh, not so late. I just had to finish that book," Tommy muttered defiantly.

His mother shook her head. "Always reading late and too tired to get up in the morning."

His father stirred his coffee vigorously and growled in his breakfast voice, "Why don't you leave the books alone and get out and play football with the other fellows?"

"He's too small, Thomas," his mother explained, "and he will never grow any bigger until he gets more sleep."

But Tommy did not believe his mother. What did she know about football, anyway? Always wanted to baby him and make him go to bed at 8 o'clock. Didn't she know he was a high school man now and high school fellows never go to bed till they want to? He hastily

"Get another foot on your height and some beef and I'll let you try," said the coach. "What chance would you have to hold George, here?"

swallowed the rest of his breakfast and bolted out of the house.

That afternoon he hurried from his Latin class to the football field. The coach, a giant of a man, was talking to George Crawley, the big senior who captained the school team.

"Not enough fellows out for the second team," Coach Hawkins was saying. "Can't you spread a little more enthusiasm in the school?"

Tommy took courage at that remark and came closer to the coach.

"I heard what you were saying. I'd like a chance for the second team, sir," he said boldly.

The coach looked down at the pale, undersized, thin boy and laughed, not unkindly, as he caught the wistfulness in Tommy's eyes.

"Sorry, sonny. Only full-sized fellows can play on our teams. Wait till you grow up and then we'll see if you're big enough."

Tommy kicked the sod underfoot. "But I'm pretty fast, sir, even if I am small, and I thought I'd be good enough for the second team. Couldn't you give me a chance?" he urged.

The coach looked at him, then glanced at big sturdy George on his other side. "Get another foot on your height and some beef and I'll let you try. What chance would you have to hold George, here?" The coach nodded in dismissal and sadly Tommy turned away.

He spent the afternoon in the empty gymnasium working with apparatus in the hope of developing his weak muscles. On his way home he found himself on the same car with George Crawley and two or three other football men. They sat back of him and Tommy heard them talking about the movies.

"Great show at the Panorama tonight," remarked one. "Too bad we can't go."

"We might take in the early show," suggested another.

"You heard what the Old Man said: In bed at 9 o'clock," declared George.

Tommy pricked up his ears.

"Yeh, that's right. Only way to keep fit is to get lots of sleep," observed a fourth.

Tommy got off at the next corner and found the football captain following him out of the car. George remembered him and nodded.

"This your corner, too?"

"Yes," replied Tommy and hesitated. "Do you really mean," he questioned, "that you aren't going to the movies and that you go to bed at 9 every night?"

"Sure thing!" agreed George. "You have to, to play football." He considered Tommy a moment.

"I shouldn't be surprised if that's what's the matter with you," he added. "I remember the nurse told us in hygiene class that lack of sleep was one cause of underweight and small size. Better try it if you ever expect to make the team."

All the way home Tommy pondered over George's advice. It was just what his mother always said but Tom couldn't believe that big boys ever went to bed early. Maybe mother was right. If George Crawley said he went to bed at 9—well, it wouldn't hurt to try.

At dinner his father also spoke of the picture at the Panorama and proposed that they all go.

"Thanks, I don't think I will." Tommy tried to speak carelessly but he had looked forward to seeing that picture and he hated to miss it. "I am going to bed early."

George and the other football men were going to sleep now, also. It was 9 o'clock.

His mother pursed her lips and his father raised his eyebrows but neither said anything. When they had gone Tom finished his lessons and went up to bed. In his room he found the latest number of his favorite magazine. He decided to read just one story in it after he was in bed. But by the time he had undressed and opened the windows wide (George had said that he always slept with wide open windows) the little clock in the parlor was striking. "Ping, ping, ping ping," Tommy counted. "Ping, ping, ping, ping, ping." Nine o'clock. George and all the other football men were going to sleep now. Tommy sighed, looked once more at the spanking ship on the cover of his magazine and, sighing again, resolutely tossed the magazine across the room.

"It might do some good," he said and turned out the light.

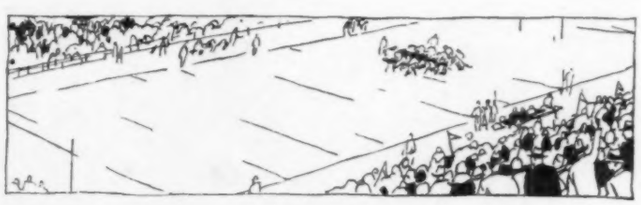
At the end of the season when the team came home victorious after winning the final game from Kenwood, Tommy was out with the rest of the school to greet the players, but he could hardly wait till the cheers and songs were over and he could make his way to Coach Hawkins' side. At last he was able to reach the coach just as he left the building.

"Oh, Mr. Hawkins," he cried excitedly. "I've been going to bed early all fall and I've grown an inch already and gained 9 pounds! Do you think I have a chance for the team next season?"

The coach appeared both surprised and pleased when he saw Tommy. Gone were the pale flabby cheeks, the dark circles under the eyes and the drooping shoulders. Instead there stood a broad shouldered, bright eyed boy, a trifle short, but sturdy looking. It was hard to believe a few weeks had made such a change.

"Good work!" exclaimed Coach Hawkins. "Now you no longer look as if you would break in two if some one tackled you. Keep it up and see me next fall. We may have a place for a chunky persistent lad."

When fall came and the teams lined up for the first practice scrimmage, there on the second team played Tommy, proudly wearing his well-fitting uniform of standard size.



New Books *on* Health

Reviews of Interest to General Reader, Parent and Teacher

MENTAL HANDICAPS IN GOLF

By Theodore B. Hyslop. With forewords by Rolf Creasy, Hon. Sec. of the Medical Golfing Society, and John Henry Taylor, five times open champion. Pp. 112. Price, $1.50. Williams and Wilkins Company, Baltimore, 1927.

AS proof of the fact that doctors take their golf seriously, Dr. Theodore B. Hyslop, the well known British neurologist, has dedicated his little book on the mental side of golf to his fellow sufferers of the Medical Golfing Society. Among the physicians of international fame also known internationally as golfers is Dr. H. D. Gillies, one of the foremost plastic surgeons of the world and once runner up in the British amateur championship. Incidentally he is an honest plastic surgeon who achieved remarkable results in repairing the faces of soldiers wounded in the war, and not one of the quack face-lifting, face-peeling, wrinkle-removing wielders of the scalpel and accumulators of the pelf that pervade some American cities.

Dr. Robert Low, a famous Scottish physician, once said that there was no better game than golf for the health of all ages, and that it acted as a splendid medicine. Mr. Taylor, who writes one of the forewords to this little book, has said that the mental attitude one adopts toward golf governs entirely whether one can play it successfully or not.

According to Dr. Hyslop the formula for par golf includes three main factors: practice, automatism and reason. Automatism is reached only by practice. When automatism becomes perfect reason asserts itself without encumbrances. Mental stability varies according to the physical condition of the player and one who is greatly fatigued when he begins to play cannot play good golf. When a golf professional is very tired he is likely to "blow up." The nerve cells tend to recover rapidly and the player may regain his poise but the intervals between periods of "cracking" or "blowing up" become shorter and shorter.

Dr. Hyslop recommends an attitude of cheerful optimism as less harmful than one of extreme timidity in playing the game. Some players let their mental states disturb the other members of their twosome or foursome. The wise player will not let the pessimism of his opponents destroy his own confidence. Circumstances that arise in any game should be taken as they come. This philosophic attitude is good advice not only for golf but for mental hygiene in general. "To have one's equilibrium disturbed by events of the past, circumstances of the present, or possibilities of the future," says Dr. Hyslop, "is a tacit acknowledgement of weak-mindedness which bodes ill for the effectiveness of immediate action."

The little book discusses many topics that have long agitated the players at the nineteenth hole. There is a consideration of the type of mind that is best for golf; the question as to whether golfers are born or made; the decision whether to carry four clubs or fourteen; and the reaction to the psychologic hazard. The real test of mental efficiency, as emphasized by Dr. Hyslop, is one of balance and of the relativities of judgment, feeling and control.

A special chapter concerns such questions as the mental attitude in putting and toward the use of the brassie or mashie. Golf is a game of consciously guided effort, not a game of chance. The purpose of practice at any stroke is to stabilize the effort. Then the movement becomes a matter of the subconscious and takes place the same way every time.

Perhaps a reading of this little volume will not serve to make a good golfer out of a poor one. It will make every golfer think, however, and no doubt make a lot more pleasure for some people who indulge in the ancient but now most popular pastime.

MORRIS FISHBEIN, M.D.

HEALTH BEHAVIOR

By Thomas D. Wood, M.D., and Marion O. Lerrigo, Ph.D. First edition. Cloth. Price, $2. Pp. 159. Public School Publishing Company, Bloomington, Ill., 1927.

YET another contribution to the field of health education comes from Dr. Wood and his former assistant, Dr. Lerrigo. It is a manual of scales expressing for various age groups appropriate standards of healthful behavior.

The book "is designed for use by teachers, supervisors and any others who may be teaching, planning or administrating programs of health education." It will also be helpful to parents seeking to cooperate intelligently with teachers in the education of their children.

Height, weight, development of bone and muscle, posture, circulation, skin, nervous system, reproductive organs, sense organs, teeth and mental development are discussed at some length. The relation of nutrition, physical education, sleep and rest and the various other hygienic essentials as practiced and taught in home and in school are clearly described.

Following this general discussion is presented a statement of the habits, attitudes and knowledge that should be acquired by the average normal child at successive school ages. Such standards, used intelligently with the recognition that exceptions to all so-called norms must be taken into account, are of great value in directing the efforts of teacher and parent and of enabling them to measure results.

This volume is a worthy companion to the other health education books from the pen of Dr. Wood and his collaborators that have been reviewed in HYGEIA within the past year.

JOHN M. DODSON, M.D.

News *and* Views

From the

FIELD OF HEALTH

POSTURE IS IMPROVED BY SPORTS

While corrective exercises are important for improving poor posture, sports have been found even more helpful. In the case of students at Harvard, it was found that of the freshmen who were obliged to take corrective exercises for poor posture those who took part in organized athletic sports during the subsequent three years showed much greater improvement in posture than those who did not go out for sports, the latter showing little if any improvement, according to a report in the Boston *Herald*.

GARLIC SCENTS BREATH FOR 72 HOURS

The development of a guide by which those who entertain a passion for garlic and other unsocial foods may regulate their social calendars so as not to give offense to the fastidious is indicated in an article in the *Journal* of the American Dental Association.

Dr. Harvey Stallard reports experiments made to determine how long food odors remain in the mouth.

Thus if one has an engagement for Saturday he should know that Tuesday night is the last time he can safely indulge in garlic, since the odor lingers in the mouth for seventy-two hours, according to Dr. Stallard's tests. Friends of the onion have greater latitude, as the less pungent vegetable manifests its presence only from twelve to sixteen hours.

The experiments tended to prove that the odors are retained in the mouth and are not caused by the retention of food in the stomach, as many persons believe. Essence of onion was swallowed in gelatin capsules without touching the membrane of the mouth and the breath odor was entirely avoided.

Coffee can be detected in the mouth from one to two hours. Smokers keep the odor of tobacco in their mouths from ten to sixteen hours. Cabbage, celery, oranges and similar foods with mild odors scent the breath for only a short time, an hour or more, Dr. Stallard's tests showed.

SHYNESS IS A MENTAL DISEASE

What should the parents of a shy boy do about it?

Mothers who drag protesting children before casual acquaintances, commenting in distressed tones on their shyness, are doing the thing best calculated to intensify the unsocial tendencies, says E. L. Thurston, writing in *Child Welfare*. Shyness is a mental disease involving the self-esteem and is the last thing to be openly ridiculed or criticized.

First, build up the boy's health, advises Mr. Thurston. Sound nerves and pure blood give courage to face people and facts. Then encourage him to do something exceptionally well. The confidence that comes from knowing whereof one speaks is not confined to children.

Many a boy's shyness has been broken down by a dog. A paper route or some other business contact draws him into the world of affairs. Natural conversation at home, unforced social activity and good normal books are among other helps suggested by Mr. Thurston.

STUDY LONGEVITY OF COLLEGE ATHLETES

The controversy over whether college athletics affect the longevity of the students adversely or otherwise is to be settled as a result of studies now being made of the situation. Forty colleges and universities have cooperated with the Metropolitan Life Insurance Company to secure the histories of over 9,000 letter men of the class of 1905 or earlier. The sports to be covered are football, rowing, track, baseball, basketball, la crosse, cross-country and hockey.

The work is at present in the hands of statisticians, who believe that the study will show the representative mortality of college athletes throughout the country.

MOURN PLAYMATES LOST THROUGH ACCIDENTS

A cortège of 389 children marched in solemn procession around Soldiers' Field in Chicago as a feature of the pageant of safety held in connection with the annual Safety Congress.

The children represented the 389 boys and girls that were accidentally killed in Chicago last year. Automobiles killed 188 children. Twenty-six were drowned. Eighty-five were burned to death. Falls caused the death of thirty-two. Eleven were killed by accidents with fire-arms and miscellaneous accidents resulted in the death of the remaining forty-seven.

CHINATOWN HAS AMERICAN PLAYGROUND

As modern vehicles invaded the narrow and congested streets of San Francisco's Chinatown, life grew more difficult for the slant-eyed youngsters who entertained themselves principally by dodging wheels in the street. Drivers and parents were in despair.

The playground commission tackled the problem. As an experiment a playground was built in the heart of America's most famous Chinatown with landscaping in Oriental design, but equipped with the best American play devices.

Now hundreds of Chinese enjoy sandpiles, tennis, swings and quoits as eagerly as do the American children. Moreover, the mothers, grandmothers and grandfathers come to watch them play, the women always busy with sewing.

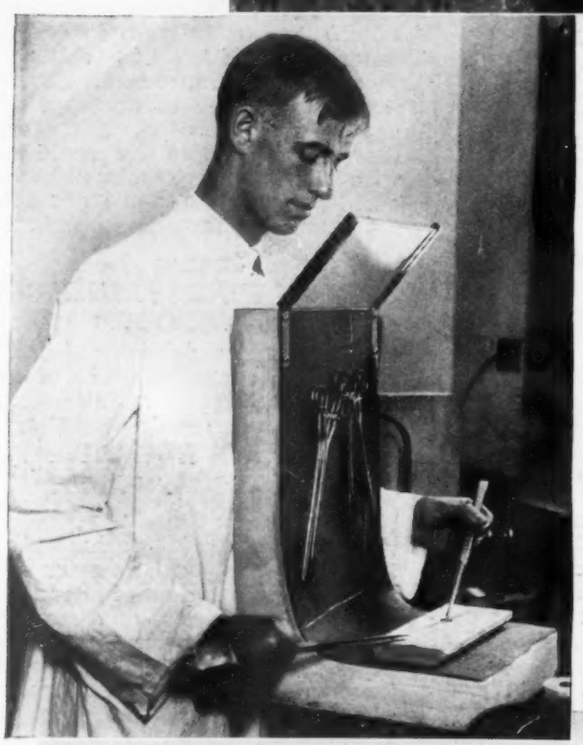
CANNED PINEAPPLE RICH IN VITAMINS

Canned pineapple ranks next to canned tomatoes in vitamins, says a bulletin from the University of Hawaii, the land of pineapples.

The sugar content varies sharply according to whether the fruit ripens in the fields or is artificially ripened. Analyses at the Hawaii experiment station of the United States department of agriculture showed 12 per cent sugar in the naturally ripened fruit and 3 per cent in that picked green.

GRAY NOVEMBER CALLS THE HUNTER to sport with rod and gun.

Michael Greenan



HANDLING RADIUM

New York's municipal supply of radium is kept in glass tubes in a container protected by 6 inches of lead and enclosed in a heavy safe. The radium in this tube is valued at $50,000 and is so powerful that the technician's eyes must be shielded by a screen of lead glass.

HOUSING THE POOR IN GERMANY

Model tenements like these are being built in Germany in an attempt to provide healthful homes for the poorer classes.

Pacific and Atlantic

Underwood and Underwood

International Newsreel

WOMEN'S SPORT IN 1818

This ancestor of the bicycle was made in 1818. It was called a hobby horse and was used by the nineteenth century sportswoman.

Underwood and Underwood

WOMEN'S SPORT TODAY

Progressing from the most sedate and gentle exercise, the modern young miss develops strength and vigor in daily practice on the track, which enables her to take even the high jumps with ease.

Pacific and Atlantic

FAMILY OF SPRINTERS

Not content with being a former world's champion sprinter himself, Arthur Duffey is training his children to follow his swift feet. Even baby Roger already shows athletic promise.

COLLEGE STUDENTS MUST LEARN HOW TO EAT

College students do not know what to eat or how to eat it, physical directors have found in their yearly examinations. Many students come to college undernourished and their education in this direction is one of the prime functions of the physical director.

Frances A. Hellebrandt of the University of Wisconsin outlines in the *American Physical Education Review* the following basic principles for eating:

Food should be taken with regularity.

Food should be taken in such quantities as to obviate eating between meals. If one must eat, the food should be of a type that will not cloy the appetite.

Insistently important is the elimination of hurried meals.

The diet should be mixed, with protein for repair, fat and carbohydrate for heat, greens and vegetables for salts and the accessory food products and an avoidance of stimulants like tea, coffee and condiments, which put an unnecessary strain on the nervous and gastro-intestinal systems.

Common sense should regulate the amount of food. Muscular activity requires a greater supply of energy-yielding food. One must develop a judgment that will dictate how much to eat.

TEACH CHILD TO CONTROL EMOTIONS

Self expression if allowed to run riot is dangerous and ends in trouble, according to a report to the American Eugenics Society of Dr. Charles W. Burr. The doctrine of self expression preached by a small group of writers means allowing the child to follow impulse and should be and is opposed by eugenists.

Emotions are more fundamental in character than intellect and it is important, as a matter of race improvement, to teach children to control emotions, including rage, fear, love and hate. Unfortunately, a few children cannot be so trained, but the mass can be.

VENTILATION IN WINTER

Ventilation and fresh air are as important in winter as in summer, says the Tennessee department of public health. Air in the house should be kept in slight motion. This can be accomplished by opening windows and doors to the requisite degree. Air currents can usually be secured by opening windows on opposite sides of the house. In a room the lower sash may be raised and the upper one lowered. When too strong a draft is created from the lower opening a board may be inserted to deflect the air or shut it out entirely, dependence being placed on the opening between the two sashes at the middle of the window for admitting cool fresh air; one may stand a screen in front of the window to break the draft.

In very cold weather with high wind natural leakage through walls and cracks will often provide a large part of the air exchange necessary.

Attention is especially called to the importance of properly heating and ventilating classrooms. The teacher is apt, if she remains in the room constantly, not to notice the gradually increasing temperature and closeness of the air. Classroom ventilation, including a consideration of proper temperature, moisture and air currents with the avoidance of all drafts and dust, is of great importance, as large numbers of children are exposed for a relatively large portion of their younger lives to a classroom environment. Poor ventilation is apt to have a serious effect on both pupils and teacher. It is often responsible for an epidemic of colds.

November Brings Wave of Epidemics

Underwood and Underwood

School children on New York's East Side are being taught diphtheria prevention, as November ushers in the most dangerous season. The Schick test first and then toxin-antitoxin, if necessary, will prevent any outbreaks of the disease.

NOVEMBER finds the annual wave of epidemics at its height, warns the Illinois department of health.

Susceptible children are in greater danger from diphtheria between now and Christmas than at any other time of year, if seasonal calendars run true to form. The Schick test will show in twenty-four hours whether a child is susceptible and toxin-antitoxin will make him immune.

Scarlet fever began to rise the last of September and will reach its peak about January. The Dick test will determine who is susceptible.

Measles began its upward climb for the winter in October. The greatest danger from measles is that it prepares the way for pneumonia and tuberculosis. Preventive serums are now available for measles, but they give only temporary immunity. If they are administered six or seven days after exposure, the attack will be mild.

Chickenpox, German measles, colds and grippe all are more prevalent in winter. They appear about three days after furnaces are started and windows closed for the winter, says the Illinois commissioner of health.

Pneumonia is the worst of all the epidemic diseases. It attacks people weakened by other diseases or by fatigue caused by dissipation, unhygienic living and occasionally by overwork. It begins in September, reaching the peak in February.

Questions *and* Answers

If you have a question relating to health, write to "Questions and Answers," HYGEIA, enclosing a two-cent stamp. Questions are submitted to recognized authorities in the several branches of medicine. Diagnoses in individual cases are not attempted nor is treatment prescribed.

Colds

To the Editor:—How can colds be treated? Do aspirin tablets have any effect on colds? In what doses should they be administered? A. G. H., California.

Answer.—Colds are best treated by remaining in bed, taking hot baths to promote sweating, being careful not to become chilled afterward, and subsisting on a light diet. Sometimes a laxative is helpful. Aspirin relieves the aching that many people experience with a cold. It is best not to take it except on the advice and under the direction of a physician.

Sciatica

To the Editor:—What is the cause of sciatica? Will chiropractic treatments help it? What is considered the best treatment? I am 37 years old and otherwise in good health. Do baths, diet or electric treatments help?

S. F. G., North Dakota.

Answer.—Sciatica is due to an inflammation of the sciatic nerve, the great nerve that runs down the back of the thigh and supplies the muscles and other structures of the thigh, leg and foot. It is sometimes caused by an infection in the body, such as in teeth, tonsils, appendix or gallbladder. The best remedy is to find the cause and remove it, although it is not always possible to do this. The application of heat should relieve the pain, but this treatment is only palliative.

Chiropractic treatment might do much harm; it almost certainly would do no good. A person with sciatica should be under the care of a competent physician and follow his advice closely.

Casts in the Urine

To the Editor:—Will you please tell me what casts in the urine indicate? What is found in the urine when a person has dropsy? Is there anything one can do to ward off this disease?

R. B., Michigan.

Answer.—The so-called hyaline casts are frequently found in small numbers in persons with no symptoms of kidney disease. Granular, epithelial and blood casts indicate an inflammation of the kidneys. Fatty and waxy casts are seen in conditions of degeneration of the kidneys of certain types.

Dropsy may or may not be due to kidney trouble. When it is associated with diseases of the kidneys, casts may be found, but they are only one of the many symptoms present in this condition. It is impossible to determine the nature of such a condition or to advise as to treatment in the absence of a thorough physical examination.

Nose Bleeding

To the Editor:—Can you inform me of a quick way to stop nose bleeding? Is there any way of strengthening the blood vessels in the nose to prevent it?

A. G. H., California.

Answer.—Bleeding at the nose may come from a variety of causes: an acute deflection of the septum of the nose; catarrhal inflammation; certain diseases, such as typhoid and diphtheria; varicose veins of the septum; obstruction to the portal circulation; suppressed menstruation in women; injury, such as picking at the nose, violent blowing of the nose and surgical operation, or perforating ulcer of the septum. It also occurs in certain constitutional diseases, as Bright's disease, scurvy, arteriosclerosis, syphilis and tuberculosis, and in connection with malignant tumors.

As a rule, bleeding at the nose is the result of a local cause and is not serious. It stops of itself, unless the person is what is known as a bleeder. When it persists, a physician should be called, but meanwhile ice water or very hot water may be applied to the nose.

There is no way of strengthening the blood vessels to prevent hemorrhage, but local conditions may be cured by proper treatment.

Peeling the Ear Drum

To the Editor:—Will you advise me what is meant by "peeling the ear drum"? Is there such an operation or treatment? If so, of what does it consist and how is it carried out?

F. J. R., New York.

Answer.—Peeling the ear drum is unknown to otologists. If the intention is to remove the external layer of the drum, it cannot be done without further injury to this structure. Deafness due to thickening of the drum is always associated with an increase of the deeper tissues and they would be unaffected by any peeling.

Does Removal of Tonsils Affect Singing Voice?

To the Editor:—Public school teachers often meet a situation in which the school physician has advised that a child's tonsils be removed, but the parents object because they fear that the operation will injure the child's singing voice. We are aware that it is better to sacrifice the singing voice than to lose one's health, but there is certainly argument for both parties. In a class in public school music the question arose as to whether the great singers of today are minus their tonsils. Could you give us the desired information or tell us where we could get some facts concerning this question?

B. F., Indiana.

Answer.—Changes that occur after operations on the tonsils vary in different persons and in exceptional cases these changes have been known to affect the singing voice unfavorably. Such instances are rare. When the tonsils are removed by an experienced operator, the likelihood that the voice will be affected unfavorably is extremely remote.

Specialists in diseases of the nose and throat who have had a large experience and have removed tonsils from many professional singers report that they have never had anything but favorable results. On the other hand, the removal of the tonsils has often resulted in an improvement in the voice, especially when the tonsils were large. If frequent attacks of tonsillitis occur, or if there is evidence that the ton-

sils are foci of infection, they should be removed even in professional singers.

Mitral Disease

To the Editor:—A recent physical examination showed that my brother, 22 years old, has mitral disease of the heart. If possible, I should like to know what might have caused this and if it is serious. What would be the proper care for a person with such an ailment?

C. E. L., New Jersey.

Answer.—The term mitral disease means that there is a defect at the mitral orifice of the heart; that is, at the opening between the left auricle or upper chamber of the heart and the left ventricle from which the blood is pumped out into the body. The most common lesion at this point is an insufficiency of the valves that normally close the opening when the heart contracts. By reason of this defect there is a leakage of blood from the ventricle back into the auricle.

The seriousness of the condition depends entirely on its extent. Many persons with mitral insufficiency, as it is called, live to a good old age and lead a fairly active life. Much more rarely there is a diminution in the size of the orifice that interferes with the flow of blood from the auricle into the ventricle. This condition is called mitral stenosis and is one of the more serious heart lesions. The patient should be examined and advised by a competent physician as to the exact nature and seriousness of his trouble.

Pigmented Hives

To the Editor:—What is the cause of pigmented hives, or urticaria pigmentosa? Will a baby ever recover from this condition? The mother states that the baby did not have this disease until after taking cod liver oil. Could the cod liver oil cause such a condition? E. M. D., Nebraska.

Answer.—The medical term for hives is urticaria. In the usual case the lesions persist for a short time only, disappearing after a few hours and leaving no trace. In some cases the lesions develop and appear as ordinary hives, yet when they disappear, a brownish pigmentation of the area involved persists for variable periods of time; this type is known as urticaria with pigmentation.

The cause of urticaria, or hives, is commonly spoken of as a food intoxication. The patient becomes hypersensitive to certain foods. A large number of different foods may cause hives in susceptible persons. Certain drugs and the bites and stings of insects also may be the cause of the rash. In the ordinary type of hives the patient may have the disorder for days or months, the disorder finally disappearing without a recurrence. Cod liver oil might cause hives in some persons.

The term urticaria pigmentosa, as used by the correspondent, is applied to a rare skin disorder that differs materially from ordinary hives. It usually appears in early childhood as brownish spots about the size of a split pea, either smooth or slightly elevated and persisting for years. These brownish spots when irritated resemble to some extent the lesions of ordinary hives; the cause is not known.

Exophthalmic Goiter

To the Editor:—Is it possible for one to have exophthalmic goiter when his basal metabolism is normal? If so, will medicine effect a cure or must one submit to an operation? Several physicians have told me I have symptoms of goiter but I hardly think it possible as my basal metabolism is normal or nearly so.

M. C., Illinois.

Answer.—Goiter workers have agreed that in a given person exophthalmic goiter may manifest itself periodically. During the attack the metabolic rate is always elevated. In the remissions the rate is normal and the patient is free of symptoms.

In the case of tumor of the thyroid gland, especially in persons over 40 years of age, there is some difference of opinion. Some maintain that this type of goiter produces toxic symptoms only when the metabolic rate is elevated; others maintain that the intoxication may be of such a low grade that it does not affect the rate but that it may still cause profound changes, especially in the circulatory system. Iodine medication temporarily relieves the symptoms in exophthalmic goiter, but does not cure the disease. It should never be used except under the direction of a physician. It does not benefit enlargements of the thyroid gland due to tumor.

Sun Rays

To the Editor:—In what way and how long can I expose my body to direct sun's rays at my age of 70 years without doing any harm to my health? Should I expose my whole body or start with only a certain part of the body at the beginning? Will it be of any advantage to expose the throat, tongue, teeth and gums for a short period daily?

C. S., Wisconsin.

Answer.—The usual plan when exposing the body to the sun's rays is to expose first the legs for five minutes; the next day the legs are exposed for ten minutes and the thighs for five; the next day the abdomen is exposed for five minutes, the thighs ten, and the legs fifteen; the fourth day the chest and arms are exposed for five minutes, the abdomen for ten, thighs for fifteen and the legs and feet for twenty. Finally the head, even the face, is exposed for five minutes—the lower parts of the body a longer period as indicated. By this time the legs and feet are being exposed from twenty-five to thirty minutes and now the time of exposure of the other parts can be gradually increased until one remains half an hour or more exposed to the sun.

When the sun treatment is given for curative purposes the body becomes so accustomed to the light that children, for example, go about practically naked all day long and the skin becomes thoroughly tanned.

There is no objection to the exposure of the throat and tongue for a short period but there is no reason to believe that it would be helpful.

In the beginning of the sun treatment it is better to make the exposure in the forenoon or late afternoon rather than in the middle of the day when the sun is at its greatest height. Indeed, it has been found unnecessary to expose the body to the full blaze of the sun, diffused daylight being almost as effective, so far as the ultraviolet rays are concerned, as is the direct sunlight.

Amebiasis

To the Editor:—Is there any recent knowledge on the subject of amebiasis pointing to a more hopeful outlook in a chronic case of one year's standing? What is the commonest cause of infection, and what precautions should be taken to protect others, especially in the home? In case of invasion of the liver are there always symptoms to determine the fact or may this be difficult to diagnose? Is salvarsan the approved treatment? F. B., California.

Answer.—Practically all cases of amebiasis can be cured if proper treatment is followed long enough. The prognosis is favorable except in cases in which the damage to the bowel, resulting from severe, long standing disease, may have produced much scar tissue and stricture, or in cases in which the liver has been damaged permanently by abscess formation. Even many of these patients regain health and comfort.

All infection with the pathogenic ameba that causes dysentery in man results from swallowing the cysts into the digestive tract. These cysts always come from the dis-

charges of infected persons, which contain them most of the time. In fact, cysts are usually present in the discharges of patients during all the time that symptoms are present and during much of the time when few or no symptoms are present. Contaminated water is probably the most frequent source of infection, contaminated food comes next and direct infection from contaminated hands is an occasional source.

Scrupulous care should be taken to dispose of the discharges of an infected person so as to avoid infecting water, food or the person (hands especially) of others.

Amebic infection of the liver may be difficult and sometimes impossible to diagnose. However, amebic abscess of the liver is now a rare condition, thanks to the early diagnosis and treatment that most persons now receive.

Salvarsan is not an approved or effective remedy for amebiasis. There are other specific remedies that are generally effective when employed properly, but to cure the infection finally and prevent relapse it is generally necessary to continue the treatment at intervals for some time after all symptoms have ceased.

Ptosis of the Stomach; Constipation with Flatulence

To the Editor:—I am a woman 41 years old, single and a school teacher. I have been troubled for four years with constipation and flatulence, which react unfavorably on my mental state. I have ptosis of the stomach of the fish hook type which extends 6 inches below the crest of the ilium and is retentive. Two or three times yearly I have a spell of diarrhea with considerable pain when the bowels move; sometimes mucus and blood passes. A test of the stomach contents showed only 12 per cent free hydrochloric acid. I also have pruritus of the vulva. I am nervous and underweight. Would the ptosis cause painful periods and nervousness? How long should one take medicine for the deficiency of hydrochloric acid in the stomach? What do you think would cause the gas and pruritus? When my gastro-intestinal tract bothers especially the pruritus gets worse. I rarely have any pain in the gastro-intestinal region, except when I have diarrhea, and then only when the bowels move. What can you tell me as to the cause and cure of my condition? What would cause me to be nauseated?

B. D., Louisiana.

Answer.—Ptosis of the stomach and intestine is a condition that was brought into greater prominence with the advent of the x-ray. It means that the stomach and intestine occupy a position much lower in the abdomen than is considered normal. At first it was considered a very undesirable condition and the cause of many abdominal complaints. At present, however, many doctors believe that in itself it is of no significance and that it is either congenital (present at birth) or the result of some disease that has lowered the tone of the entire musculature of the body. A support will probably not help the condition and it is probable that it will always exist. In itself it will do no harm but the condition causing it may.

Painful periods and nervousness are not due to ptosis but may be the result of the same exciting cause. The fact that the stomach is retentive is of more significance than the ptosis.

Constipation, flatulence and nausea are often partners, and low hydrochloric acid content of the gastric juice is also present at times. All are due to abnormal conditions of the gastro-intestinal tract. The diarrhea, blood and mucus are further evidence of disease. Whether the bowel is the primary seat of trouble or whether these symptoms are due to reflex stimuli arising from disease in some other part would have to be determined by a physician.

While the amount of free hydrochloric acid in the stomach as reported after an Ewald test meal is lower than normal it is not alarmingly so. Hydrochloric acid may be taken safely by mouth for as long a period of time as the physician feels it is indicated, as it is a normal constituent of the gastric juice.

Pruritus vulvae may be due to (1) local disease of the skin, such as a form of ringworm; (2) disease of the vagina with irritating discharge, or (3) sugar in the urine. This could be determined by proper examination and the treatment will depend on the cause.

Symptoms such as have been enumerated call for a detailed study of the patient's entire history and of the physical and laboratory findings, so that treatment could be directed at the primary cause instead of at the symptoms.

Calcium in Tuberculosis Treatment

To the Editor:—Would you give me detailed information as to the part played by calcium in the cure of tuberculosis and the present attitude of the medical profession toward it?

M. S. D., Arizona.

Answer.—Calcium is undoubtedly an important element in the final healing of the tubercle, but it is ordinarily not necessary to take any special measures to insure an adequate supply. The body contains a vast storehouse of the element in the bones and an average diet furnishes a superabundance. No source is better than milk, a single quart of which contains in easily absorbable form an amount equal to that contained in half a dozen average sized calcified tubercles.

A popular article dealing with lime cures was published by E. R. Long in the *Journal of the Outdoor Life* in 1925, and the subject is also discussed in "The Chemistry of Tuberculosis," by Wells, DeWitt and Long, Baltimore, 1923. Probably the actual state of the tubercle and its degree of fibrosis, and possibly the body's regulatory power for blood calcium, are of much more importance than the source and quantity of calcium absorbed.

Hemorrhoids

To the Editor:—I should like to learn about hemorrhoids. What seems to be the cause and are they contagious? Is there any cure except an operation? Would they have any effect on the vomiting of pregnancy?

M. B., Minnesota.

Answer.—Piles, or hemorrhoids, is the name applied to enlargement of veins about the anus. They may be either inside or outside the margin between the skin and the mucous membrane of the rectum. Many persons have hemorrhoids in greater or less degree and whether or not operation is necessary to relieve the trouble depends entirely on the conditions present in the particular case.

Whenever they cause a great deal of annoyance and pain, operation is the most certain and satisfactory way of curing them. They are not contagious. They would have no relation to the vomiting in pregnancy except that severe vomiting might tend to aggravate them.

Trench Mouth and Trench Feet

To the Editor:—Is there a specific germ that causes trench mouth or trench feet? If so, how can a smear or slide be made to find the cause of this condition? Is there any connection between trench mouth and enlarged lymphatic glands or the prostate gland?

F. J. R., New Jersey.

Answer.—Trench mouth is the name given during the war to Vincent's angina, a well known disease of the mouth caused by a fusiform bacillus and a spirilla or spirochete found in association with it. Trench foot is defined in a recent medical dictionary as a condition of frostbite affecting the feet of soldiers on trench duty obliged to stand for long periods of time in cold water.

It is not infrequently applied to a fungus infection, which is especially apt to appear between the toes.

Trench mouth, like any infection of the mouth, might be associated with enlarged glands of the neck. It is unlikely that there would be any connection between either of these diseases and enlargement in the prostate gland.

Bone Cysts

To the Editor:—I have a boy 15 years old who had a fall about eleven weeks ago and broke his thigh bone near the hip. An x-ray picture showed a cloudy spot on the bone just below the break. Specialists and other physicians say that the fracture was through a bone cyst and that such cases usually heal in time; that is, the cyst disappears and the bone knits together. The boy was in a plaster cast for eight weeks. Then another x-ray picture was taken but the cyst had not disappeared nor had the bone knit. For the last three weeks he has been resting in bed with neither cast nor splint. He is getting good diet, sunshine and fresh air and feels pretty well. What is the cause of a bone cyst and how long will it take for a cyst of this nature to disappear? Is there any special treatment, such as ultraviolet rays or chiropractic treatments, that will help the patient recover faster? What is the usual outcome of such cases?

B. H. W., New York.

Answer.—The cause of bone cysts is unknown but it is probably some form of weak infection. Usually after a fracture of this kind the cyst disappears and the bone heals as strongly as it ever was before.

Ultraviolet rays are of no known value in this condition. Chiropractic treatments have never been known to help anything of this nature.

If the diagnosis is correct, the usual outcome of such cases is completely satisfactory.

Artificial Light

To the Editor:—I am interested in securing a type of reading lamp that will diminish eyestrain. It occurred to me that the American Medical Association may have made an investigation concerning the different kinds of artificial lights for reading. If so, how could I procure a copy of such a report? E. W. E., New York.

Answer.—There is no "best" reading lamp. One should always read in a soft agreeable light that, while ample, does not cause a reflection from the page. One should never read or work facing a light of any kind.

Indirect illumination for homes and offices is best, as every part of the room may be uniformly illuminated and the eye is not exposed to direct rays from the source of light. If one must use a reading lamp it should be placed behind and a little to one side. The lamp should be frosted and one should sit far enough from it so that there is no glare from the page. This subject is well covered in a pamphlet entitled "The Relation of Illumination to Visual Efficiency," published by the American Medical Association.

Bates Treatment: Tuberculosis; Coated Tongue

To the Editor:—1. I have recently noticed advertisements in some of the so-called quality group magazines of a book by W. H. Bates, M.D., claiming that through proper exercise and use of the eyes persons can be cured of myopia and astigmatism without the use of glasses. How much recognition has the medical profession given to this theory? Ten years ago I started wearing glasses for myopia. The doctor decreased the strength of my glasses until five years ago it came down to —1.00. Yearly check-ups since then showed no change until this year after I had taken the rest cure for tuberculosis for a year. Now the doctor claims that I have to wear —2.00. Could tuberculosis have increased the degree of myopia? If not, why should it increase after it had decreased materially? 2. Does a fast pulse in tuberculosis mean no exercise? I have not had fever since I began to rest, but my pulse rate has decreased only about 20 beats and is almost 90 most of the time, yet the doctor put me on a little exercise. I have gained 20 pounds and weigh more than I ever did; nevertheless I am still about 15 pounds underweight for my height and age and have not gained any in the last six months. Could severe shifting headaches be due to the toxic condition? 3. What could a coated tongue that clears up for only a few days after taking calomel mean?

E. A. A., Kansas.

Answer.—The bureau of investigation of the American Medical Association has published an article about the Bates treatment. A great deal of harm has been done by the advice to throw away one's glasses. Any one with nearsightedness or any other error of refraction should consult a competent oculist and wear such glasses as are prescribed. It is impossible to say whether the tuberculosis had anything to do with a change in nearsightedness.

2. A general statement cannot be made as to the effect of exercise on pulse and temperature, for they are only two of a number of conditions that are important in tuberculosis. The fact that a patient gains weight under the treatment prescribed is one of the best indications that the treatment is correct. It may be that the weight attained is normal at this time. That is for a physician to decide.

3. A coated tongue may signify a number of conditions. The cause in a particular case can be determined only after careful examination.

Height of Child

To the Editor:—My daughter, 7 years old last April, is 51½ inches in height. Does such a growth signify any serious condition? She is of a nervous temperament, has never had a big appetite, although at times she eats heartily. I have always been careful of her diet. Her color is good and she looks well nourished, although slender. Her mother is 5 feet 6 inches tall and her father is 6 feet 1 inch. She has grown 1½ inches in the last three months. B. G. R., California.

Answer.—The child is decidedly overheight for her age, but such irregularities of growth are not uncommon in children. Some children grow at a much higher rate for a brief period than is the rule and then grow little for a considerable period.

If the child is well nourished, has a good color and is otherwise normal, there is probably little occasion for worry, but it would be a good idea to have her under the observation of a competent physician who devotes his attention exclusively to children.

Ventilation of One Room School

To the Editor:—Would the heating and ventilation be adequate in the following schoolroom: The dimensions of the room are about 18 by 26 feet and the ceiling is 12 feet high. There is a row of windows on one side, which may be either raised or lowered. An ordinary heating stove, which burns wood, is placed near the center of the room. About twenty pupils occupy the room, and they are kept at work only for ninety minute periods. At the end of each period the door is opened and the room is flooded with outside air. R. W. C., Missouri.

Answer.—If a thermometer is put in the schoolroom and if the temperature is kept at 68 F., or below, when the outside temperature makes it possible to do so, and if the stove is so constructed as to avoid any striking and abnormal leakage or combustion products, there ought to be no trouble about the ventilation of the room in the manner described.

An expert study of the ventilation of the one room school is now being made.